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COVER FOCUS

Power & Cooling Primer

Power and cooling are two of the biggest issues facing today's data centers. We provide a better understanding of power and cooling, including how much your data center needs, solutions to common problems, and more.

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Solutions To Common Data Center Problems

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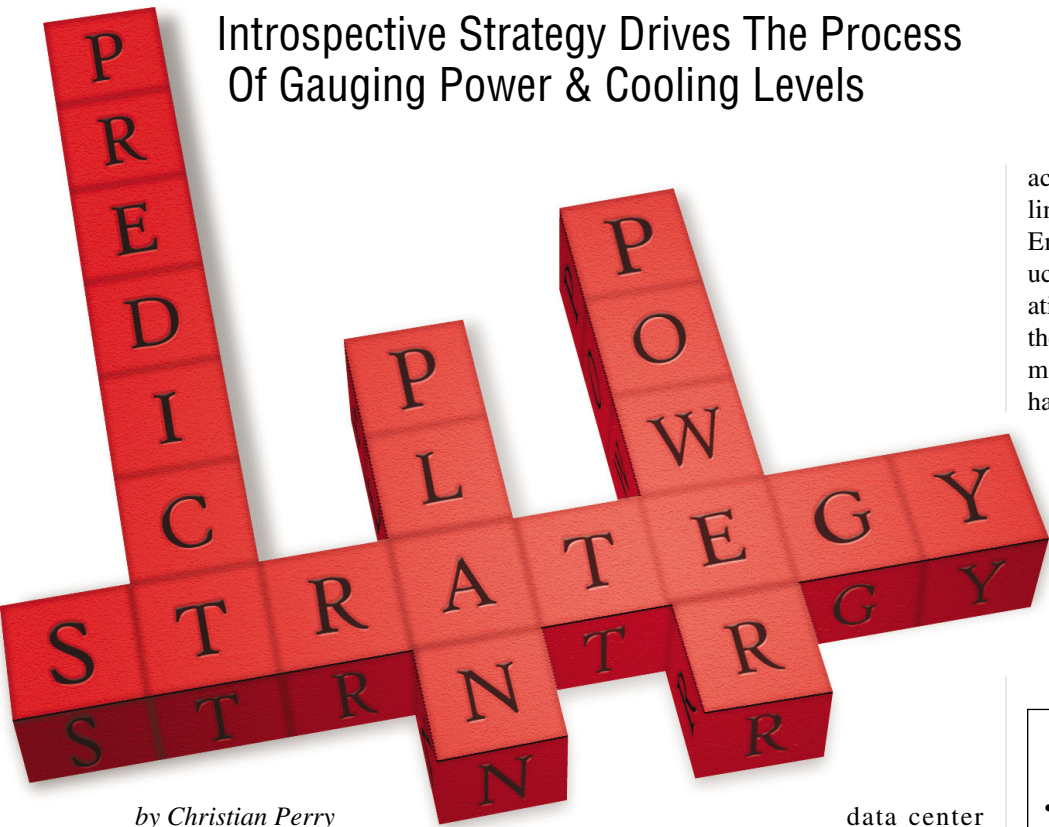
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# Power & Cooling Capacity Planning



Introspective Strategy Drives The Process Of Gauging Power & Cooling Levels

by Christian Perry

**PULL THE WRAPS** off the best-laid plans for any modern data center and you'll discover an intricate roadmap for power and cooling that forms the backbone of that space. Because these physical infrastructure elements are critical to the overall success of the data center, it's essential to determine the correct amount of power and cooling for both present and future needs.

Due to the wide range of technologies now populating data centers, that task can be monumental in scope. Whether building new, renovating, or creating an addition,

data center managers not only must gauge the power and cooling required to provide basic support for their equipment, but they are also being increasingly pushed to consider energy-efficient options that can help save their organization money in both the short term and long run. Balancing these factors to find the perfect outlay of power and cooling requires a targeted strategy.

Predict Your Power

A primary issue to consider is the level of reliability you need from your data center and the layers of redundancy needed to

achieve that reliability, says Matt Kightlinger, director of solutions marketing for Emerson Network Power's Liebert Products ([www.liebert.com](http://www.liebert.com)). Another consideration is high-density equipment, whether at the row level or at the rack level, because most of today's data centers are going to have a high-density zone.

Arriving at a determination for specific power and cooling also starts with the application of servers and other hardware using those elements. For example, if an organization deploys server virtualization or cloud computing, the servers could be operating at a higher load level

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Key Points

- Determining specific power and cooling needs depends not only on the data center's hardware but also on the utilization levels of those devices.
- Power consumption levels provided in manufacturer specifications can refer to maximum levels, so keep this in mind when gauging the amount of overall power required for your space.
- The most critical step for ensuring future power and cooling needs will be covered is power capacity, because unplanned cooling needs often can be addressed on an individual level.

## Firewall Auditing Tools

Automated Tools Help Keep Up The Primary Defense Against Network Security Threats

by Kurt Marko

**THE CONVOLUTED MAZE** known as spaghetti code isn't an affliction restricted to application programmers; network security admins have their own strain known as the firewall rulebase. Although firewalls have been a standard feature of enterprise network security for years, ever-changing and morphing

threats mean that one's database of firewall filtering rules continues to get more complex, convoluted, and incomprehensible.

In a recent study in the ISSA Journal titled "An Analysis of Firewall Rulebase (Mis)Management Practices" Notre Dame researchers Mike Chapple, John D'Arcy, and Aaron Striegel reported most companies paid scant attention to firewall management

practices. They concluded "that firewall rulebase complexity greatly exceeds that discovered in prior research and that administrators feel this complexity is a major contributing factor to rulebase configuration errors." Furthermore, the Notre Dame team says the evidence suggests admins routinely make configuration errors that expose their network to risk and that "in general, firewall administrators are not following recognized best practices for firewall administration on a regular basis."

Bolstering these conclusions, Forrester Research Analyst John Kindervag, in a recent report on firewall auditing tools, found that "Feedback provided by the card brands and PCI auditing firms indicates that

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### Slightly Mixed Results For Verizon In The Third Quarter

According to Verizon Communications, the company saw a drop in profits of 18 cents per share—a decline of more than 9%—in the third quarter of 2009 vs. the same period in 2008. However, revenue climbed 10.2% over Q3 2008, due in large part to the acquisition of Alltel in January. Additionally, Verizon Wireless gained 1.2 million new subscribers in the third quarter, outpacing expectations by about 200,000 subscribers. Cash flow in the first three quarters of this year totaled \$23.1 billion, which is a 16% increase from the same period in 2008.

### NSA To Build \$1.5 Billion Cybersecurity Data Center

Glenn Gaffney, deputy director of the NSA (National Security Agency), announced plans to build a 1 million-square-foot facility to house the NSA's cybersecurity data center. The center will be home to the NSA's Comprehensive National Cybersecurity Initiative, announced under the Bush administration. The site will be located near Salt Lake City at the Utah National Guard's Camp Williams. Most of the details of the project are classified, but the thrust of the project appears to be the consolidation of external Internet connections throughout the government and increasing the efficiency of government responses to external threats.

### Dassault & IBM Strike Deal

Software maker Dassault Systemes, based in Velizy-Villacoublay, France, announced that it is acquiring IBM's PLM (product lifecycle management) sales and customer support operations for \$600 million. The French software group and IBM will integrate their PLM



operations and are expected to complete the transition within the first half of 2010. About 700 IBM workers will be employed by Dassault, and the company will also pick up about 1,000 IBM customers.

### SAP's Sales Fall, Earnings Rise

According to third-quarter financial results released by SAP, the company's earnings rose by 12% despite a 9% slip in sales. SAP says it expects revenues from software and software-related services to continue to drop throughout the rest of the year by between 6% and 8%, which is more than the 4 to 6% decrease it predicted earlier in the year. Since the beginning of the year, SAP has had to lay off workers at a higher rate than forecasted, including a reduction of more than 3,000 jobs.

### Cisco To Buy SaaS Web Security Company

Cisco is acquiring Web security company ScanSafe for \$183 million in order to add to ScanSafe's SaaS security offerings to Cisco's networking portfolio. ScanSafe's offerings include the Anywhere+ SaaS service, which protects against malware and laptop breaches. Cisco plans to integrate ScanSafe's technology into its own AnyConnect VPN client, and ScanSafe will become part of Cisco's Security Technology business unit. The full acquisition of ScanSafe will close in Q2 of Cisco's fiscal

year 2010. This is the second Web security purchase for Cisco in recent years; the company purchased IronPort in 2007.

### FCC Working To Establish Net Neutrality Rules

Although Republican commissioners and other dissenters are railing against the U.S. Federal Communications Commission, the FCC will commence its plan to create new net neutrality rules to augment the four Internet freedoms approved in 2005. The latest principles encourage transparency and request that Internet providers treat lawful content, applications, and service in a non-discriminatory fashion when providing bandwidth access. The transparency rule requires that Internet providers disclose network management practices. The FCC is evaluating managed network services as it works to protect wireless innovation and network framework.

### iPhone Boosts AT&T's Results

Third-quarter iPhone takeup helped AT&T break its quarterly record, with 40% of the 3.2 million activations coming from new customers. The addition of 2 million subscribers and record-low churn (1.43%) helped the company come within a stone's throw of its performance one year ago, with just a 1.2% drop in profits year over year. Revenues for the third quarter were \$30.9 billion, up just 0.4% sequentially. AT&T's Q3 operating income was \$5.4 billion on a margin of 17.5%. Revenue from wireline IP data services such as U-verse jumped 18.7%, also helping to fuel the company's respectable performance this quarter. Earnings per diluted share were 54 cents, down just a penny from one year prior.

### EMC Exceeds Predictions In The Third Quarter

An 8% sequential rise in revenue put EMC's third quarter ahead of the company's predictions. Its \$3.52 billion in revenue, though down 5% from Q3 2008, far surpassed EMC's expected sequential increase of 4 to 5%. Net income rose to \$298.2 million (GAAP), up 45% from the second quarter, and \$480.3 million (non-GAAP), a climb of 28% sequentially. EMC has \$8.4 billion in the bank and achieved an \$888 million operating cash flow in the third quarter.

### Government IT Spending Slows

A new report from TechAmerica that looks at civilian agency IT spending over the next five years has determined that government IT spending will slow down considerably. Civilian agency IT spending is projected to grow 3.4% annually through 2015, compared to the 8.3% growth rate seen between 2005 and 2010. One of the reasons for the slowdown is a ballooning federal deficit, which is expected to remain 4% or more of the GDP through 2020. The government departments that will see the biggest IT budget growth include the Departments of Health and Human Services, Justice, and Treasury. The Department of Commerce will see the biggest cuts. According to TechAmerica, government IT spending through 2015 will



be largely propelled by demand for government services, with spending focusing primarily on cybersecurity, infrastructure consolidation and modernization, cloud computing, Web 2.0, and mobility initiatives. The report also forecasts declines in total military spending, from \$184 billion in 2009 to \$110 billion in 2020, which amounts to a 5% annual cut.

### Study: Cell Phone Use May Be Hazardous To Your Health

British researchers announced the findings of a study conducted by the World Health Organization that has found a link between long-term cell phone use and brain tumors. The study found that those who used cell phones for 10 years or more were statistically more susceptible to brain tumors. The study



was based on interviews with 12,800 people in 13 countries. The report calls for limiting cell phone use by children and only moderate use by adults. The report recommends users cut down on direct contact with cell phones by using a Bluetooth headset or other hands-free kit. The Mobile Operators Association points to more than 30 other scientific studies that found no links between cell phone use and brain tumors.

### Nokia Sues Apple Over Patents

Nokia is suing Apple for allegedly refusing to license any of Nokia's patents in technologies related to wireless handsets. Apple is accused of not licensing patents concerning wireless data transfer, speech coding, security, and encryption, and Nokia alleges that all versions of the iPhone infringe on its patents. Analysts estimate that the damages for the suit could be more than \$1 billion. Nokia is the largest handset maker in the world, but its dominance has suffered due to entrants such as Apple, whose iPhone has made it one of the most popular handset vendors.

### Yahoo! Puts Pay-Per-Click Suit To Rest

Yahoo! has settled a class-action lawsuit that was filed against it in 2006 alleging that the company sold advertisers pay-per-click ads intended to appear in targeted areas but ended up being placed in less desirable locations, including Web pages with spyware intact. In addition to settling the lawsuit, Yahoo! has reportedly agreed to alter how it sells certain ads on its various Web sites via an Ad Placement Option that guarantees ads appear on sites Yahoo! owns or those of premium partners. The option reportedly will go into effect no later than Sept. 30, 2010. According to Rustconsulting.com, the administrator in the case, Yahoo! allegedly "breached its contract with its customers by allowing Yahoo! ads to be displayed in spyware, domain-name parking sites (bulk registration sites), pop-ups, pop-unders, and typosquatting sites." Yahoo! will pay eligible class-action members that are now out of business a \$20 refund upon filing a claim. It will also pay attorney fees of more than \$4.1 million and expenses exceeding \$100,000.

## UpcomingIT Events

Are you looking to learn more about data center or IT topics? Network with some of your peers? Consider joining a group of data center professionals. If you have an event you'd like listed, please send an email to [feedback@processor.com](mailto:feedback@processor.com).

### - NOVEMBER -

[AFCOM St. Louis "Gateway" Chapter](#)

Nov. 10

Schneider Electric Technology Center  
807 Corporate Centre Drive  
O'Fallon, Mo.

[www.afcom.com/afcomnew/stlouis.html](http://www.afcom.com/afcomnew/stlouis.html)

.....

[AITP Garden State](#)

Nov. 10

[www.aitp.org/organization/chapters/chapterhome.jsp?chapter=21](http://www.aitp.org/organization/chapters/chapterhome.jsp?chapter=21)

.....

[PASS Wisconsin SQL Server User Group](#)

Nov. 10

Green Bay, Wis.  
[wisconsin.sqlpass.org](http://wisconsin.sqlpass.org)

.....

[AFCOM New England](#)

Nov. 11

[afcomnewengland.org](http://afcomnewengland.org)

.....

[AFCOM Central Ohio](#)

Nov. 11, 11:30 a.m.

Columbus, Ohio  
[www.afcomcentralohio.org](http://www.afcomcentralohio.org)

.....

[AITP-Central Idaho](#)

Nov. 11, 11:45 a.m.

Owyhee Plaza Hotel  
1109 Main St.

Boise, Idaho

[www.boisestate.edu/dpma/dpmaci/centida.html](http://www.boisestate.edu/dpma/dpmaci/centida.html)

.....

[Metro Atlanta ISSA 2009 Annual Security Conference](#)

"Magnify Your Security"

Nov. 11

Loudermill Center  
40 Courtland St.

Atlanta, Ga.

[www.gaissa.org/conference/index.htm](http://www.gaissa.org/conference/index.htm)

.....

[AITP Washington D.C.](#)

Nov. 12, 6:30 p.m.

Alfio's Restaurant  
4515 Willard Ave.

Chevy Chase, Md.  
[aitpwashdc.ning.com](http://aitpwashdc.ning.com)

.....

[ISSA Northeast Ohio](#)

Nov. 12

[neoissa.org](http://neoissa.org)

.....

[SQL Server Society Of Las Vegas](#)

Nov. 12

Henderson, N.V.  
[ssolv.com](http://ssolv.com)

.....

[AFCOM Arizona](#)

Nov. 13

Safeway Inc.  
Tempe, Ariz.

[www.afcomarizona.com](http://www.afcomarizona.com)

.....

[Central Ohio PMI](#)

Nov. 13, 8 a.m.

Platform Labs  
1275 Kinnear Road

Columbus, Ohio  
[www.pmicoc.org](http://www.pmicoc.org)

.....

[7x24 Exchange Fall 2009 Conference](#)

Nov. 15-18

JW Marriott Desert Ridge  
Phoenix, Ariz.

[www.7x24exchange.com](http://www.7x24exchange.com)

.....

[AITP Pittsburgh](#)

Nov. 16, 6 p.m.

Sokol Club-Southside  
2912 E. Carson St.

Pittsburgh, Pa.  
[www.aitp-pgh.org](http://www.aitp-pgh.org)

.....

[AITP Southwest Missouri](#)

Nov. 17

Springfield, Mo.  
[aitpspringfield.org](http://aitpspringfield.org)

.....

[Central Ohio VMware](#)

Nov. 17, 9 a.m. to noon

1275 Kinnear Road  
Columbus, Ohio

[www.covmug.org](http://www.covmug.org)



PRODUCT RELEASES

CLIENTS

■ Kyocera Mita America TASKalfa 520i & 420i

Kyocera Mita America released the TASKalfa 520i and 420i, both black-and-white multifunction printers. The 520i has a 52ppm rating, while the 420i has a 42ppm rating. Both are aimed at midvolume workgroups and enterprises and sport 600 dpi resolutions. Additionally, both devices are based on the company’s MFP engine technology, which uses the company’s long-life Amorphous Silicon drum, and each features an 8.5-inch color touchscreen panel, 2GB of RAM, 160GB hard drive, advanced USB host interface, password-protected and encrypted PDF documents, dual 500-sheet adjustable paper drawers, and a 200-sheet tray. The MFPs come standard with the company’s KX Driver, PDF Direct Print, and Prescribe Solution for on-demand black-and-white document creation. The 520i has a list price of \$11,495; the 420i is listed at \$9,845.

MESSAGING & TELEPHONY

■ Metalogix Professional Archive Manager For Exchange v4.0

Metalogix announced version 4.0 of its Exchange archiving solution, Professional Archive Manager. Version 4.0 is priced at \$15 per mailbox in North America and features enhancements including federated search, advanced search, enhanced e-discovery, search and litigation hold functionalities, tagging and archived document classification support, and PST file segmenting. Metalogix is offering a free trial at its Web site.

■ Polycom RMX 4000 & RSS 4000

Polycom released two visual communication infrastructure platforms: the RMX 4000 and the RSS 4000. The Polycom RMX 4000 is a multipoint conferencing platform that can support HD video calls and audio conference calls. The Polycom RSS 4000 is a recording and streaming server for creating and streaming HD video content. The RMX 4000 includes resolution transcoding, flexible management (when paired with the Polycom DMA 7000), advanced telecom computing architecture for multiple bridges, and in-system redundancy. The RSS 4000 offers resolutions up to 1080p, 15 simultaneous conference recordings per server, and dual hard drives (with RAID configuration), and it works with Polycom Video Media Center 1000. Starting price for the RMX 4000 is \$152,000; the starting price for the RSS 4000 is \$22,500.

■ Red Condor Archive

Red Condor announced Archive, its message archiving service. Archive helps organizations meet compliance and e-discovery support regulations as well as achieve best practices in data storage and management. Archive is available as a subscription service,



with plans that include lifetime retention and unlimited storage. Users have the ability to access their online data through a dashboard and to search, retrieve, and export messages. Other features include the automatic archiving of all inbound and outbound messages, instant setup and configuration, and support for all messaging systems.

■ Sendio 166 Software & Hardware Bundles

Sendio released the Sendio 166 software and hardware bundles for enterprises with five to 150 email accounts. The small hardware platform utilizes the Intel Atom processor (featuring 1GB of memory). A complete 25-user turnkey solution is offered for \$1,595.

■ Tandberg Profile Series

Tandberg unveiled its expanded Profile Series product line that offers an extended range of integrated high-definition interoperable solutions for collaboration. The new options in the Profile Series include the entry-level Profile 42, Profile 65, and Profile 65 Dual video collaboration systems. The standards-based Profile Series allows connection with customers and co-workers over any system, from telepresence to the desktop. Each system is designed for a consistent user experience and offers 1080p HD; large, high-quality screens; and an intelligent, user-friendly interface. Natural communication is also achieved through full-duplex audio and a PrecisionHD 1080p camera. All Profile Series products come with Tandberg’s Codec technology to let you easily share presentations and multimedia.

■ Tandberg Telepresence T1

Tandberg announced Telepresence T1, a tool designed to allow customers to facilitate a high-quality immersive telepresence, regardless of group size. Delivering the same experience as the Telepresence T3 but with a smaller footprint, the Telepresence T1 features a multiscreen, high-definition telepresence experience when calling out to third-party telepresence systems. Other features include ease of use and seamless interoperation with all Tandberg products, Microsoft Office Communications Server, and other standards-based video end points and telepresence systems.

NETWORKING & VPN

■ AEP Networks Netilla 6.4

AEP Networks unveiled the latest version of its AEP Netilla secure application access product line. AEP Netilla version 6.4 offers MyDesktop, which provides access to users’ office desktop personal computers from remote locations. Secure, browser-based access to a wide range of enterprise applications is available through the AEP Netilla gateway appliance. This allows seamless support for Windows Remote Desktop Services and Citrix XenApp. Users can quickly and safely reach all company resources with any PC, laptop, or thin client device.

■ Enterasys S-Series Network Switches

Enterasys announced the release of its S-Series network switches. The switches are designed to optimize data, voice, and video traffic in enterprise networks and virtualized and cloud computing environments. The



S-Series includes automated provisioning of virtual and physical server connectivity, fully distributed switching and system management architecture, self-healing functionality, intelligent traffic management for IP phones, periodic reload and rollback of firmware, and multiple standards-based discovery methods to automatically identify and provision VoIP services.

■ Fortisphere Virtual Service Manager

Fortisphere unveiled the Fortisphere VSM (Virtual Service Manager), which is designed to proactively manage workloads and allocate virtual resources according to business priorities. The company says the Fortisphere VSM enforces service tiers based on the correlation of uptime, performance, utilization, and granular guest-level configuration data. This lets IT personnel maximize density and ROI without compromising service levels. Offering ease of use and quick installation, Fortisphere VSM has a thin client interface customized for each stakeholder. Thanks to

its unique architecture, VSM is able to collect the detailed VM configuration data needed to present full visibility throughout the virtual environment and provide optimal service to the enterprise.

■ IBM Software Services For Tivoli Offering

IBM announced a service that helps enterprises automate the flow of information across IT service desk operations to deliver faster incident management and issue resolution, higher employee productivity, and reduced operational expenses. Users of IBM Tivoli Service Request Manager and the IT service desk of the SAP Solution Manager application management solution can use the service to route incidents to the right organizations, ideal for IT service desks that support both internal and external organizations. The new offering from IBM Software Services for Tivoli assists customers in designing and implementing a complete incident management strategy. The company says that customers can use IBM Tivoli Service Request Manager version 7.1 software to automatically route incidents to the appropriate groups across the enterprise, regardless of the environment in which the incident originated.

■ IBM VMControl

IBM launched its latest data center management solution, VMControl, which is ideally suited to the unique demands of enterprises. In conjunction with IBM Tivoli software, the solution lets users control multiple types of IT systems and virtualization technologies, including Unix/Linux, mainframe, x86, and storage systems and networks. VMControl lets users group physical and virtual IBM servers together to manage them as a single unit, which helps streamline and ease complex management requirements and improve resource sharing and prioritization.

■ Lantronix XPort Pro

Lantronix released XPort Pro, the latest addition to its XPort family of embedded Ethernet networking and compute modules. XPort Pro features an engine for deploying advanced applications at the network edge in an integrated, thumb-sized package. The XPort Pro’s 32-bit processing power and memory allow resource-intensive applications to be deployed on a single platform. Advanced networking and security features enable M2M (machine-to-machine) edge computing with unlimited customization and application hosting, which provides developers with faster time-to-market and application development options. XPort Pro is available running Linux and IPv6 as well as the Evolution OS turnkey operating system and software development kit. It includes Lantronix’s patent-pending VIP (Virtual IP) Access technology that enables integration with the company’s ManageLinx remote services enablement platform.

■ ManageEngine NetFlow Analyzer Enterprise Edition V7

ManageEngine released version 7 of NetFlow Analyzer Enterprise Edition as the latest addition to its traffic analysis and network forensics application. New monitoring and reporting capabilities include Cisco CBQoS (Class Based Quality of Service) monitoring for business-critical networking traffic and support for Cisco NetFlow and NBAR (network-based application recognition). NetFlow Analyzer Enterprise Edition V7 also features high scalability for distributed enterprise networks, a management dashboard, customizable monitoring reports, and the Netflow Analyzer community. NetFlow Analyzer Enterprise Edition V7 starts at \$9,995.

■ Net Optics Director Xstream & iLink Agg Xstream

Net Optics released the Net Optics Director Xstream and iLink Agg Xstream for network monitoring. Together, Director Xstream and iLink Agg Xstream deploy intelligent monitoring for 10G networks. The Net Optics Xstream product line efficiently monitors traffic streams and centralizes network operations with data access tools. Director Xstream features TapFlow filtering technology that allows enterprises to organize traffic by network protocols, IP address, ports, and VLANs. Features include 20-link aggregation, L2/4 filtering capabilities (for Director Xstream), remote access via port/SNMP v3 management, device neutrality, dual power redundancy, and RMON statistics. Director Xstream is available for \$47,500; iLink Agg Xstream is offered for \$33,500.

■ Network Instruments Observer 14

Network Instruments released Observer 14, an upgrade to the company’s performance management platform. Network Instruments says the release focuses on problems facing network teams in quickly identifying and resolving application issues before users are impacted. Features of the release include an auto-baselining ability, solution-focused workflows aimed at reducing repair with user-defined investigations, expanded application transaction analysis, a GigaStor NetFlow Agent to export NetFlow data from any network point, and support and analysis for SRTP (secure VoIP).

■ Oracle VM 2.2

Oracle announced the latest version of its server virtualization software, Oracle VM 2.2, which lets users deploy and manage enterprise applications faster and more easily. The offering also enables users to operate their installations in a more environmentally responsible manner. Oracle VM 2.2 features Xen 3.4 hypervisor and delivers on the performance promises of Intel Xeon 5500 series and six-core AMD Opteron processor-based systems. New features include CPU power management, memory management, direct disk I/O capabilities, support for both Oracle and non-Oracle applications, direct support for multipath storage devices, and the ability to set the scheduling priority for virtual CPUs in virtual machines.

■ Radware LinkProof

Radware revealed its LinkProof multiple WAN application infrastructure solution, which lets users access load balancing on-demand, or pay-as-you-grow, for speeds of 100Mbps to 4Gbps. Available on Radware’s OnDemand Switch platform, LinkProof delivers a patented multihoming solution, a wide array of deployment options, easy-to-upgrade bandwidth availability through a licensing model approach, enhanced value and ROI with guaranteed connectivity, optimized application delivery with continual ISP connection health and performance monitoring, intelligent inbound and outbound traffic redirection, and rapid content delivery for networks with multiple connections to the Internet. LinkProof is scalable enough to meet the needs of small to large-sized enterprise headquarters, remote locations, and branch offices.

■ Riverbed Technology Interceptor 9350

Riverbed Technology announced the Interceptor 9350, an appliance designed to offer increased scalability and flexibility for large-scale WAN optimization deployments. The Interceptor 9350, equipped with Riverbed software, features 12Gbps of throughput to optimize it for high-throughput data replication and disaster recovery designs; 10G NIC to enable the Interceptor to integrate with modern data center designs;



PRODUCT RELEASES

and 20 Gigabit Ethernet ports, which can be configured with four onboard and 16 additional ports for maximum scalability.

PHYSICAL INFRASTRUCTURE

■ Data Aire & Opengate Data Systems Partnership

As a Unity Cooling Partner with Opengate Data Systems, Data Aire announced it is offering Opengate’s rackmounted cooling systems and components through Data Aire’s international representative network. Opengate’s cooling system method of hot air containment in the data center is economical and offers flexibility and scalability. Server exhaust air is drawn out by two variable speed fans, which are controlled by internal rack pressure. Air is then pushed back to the Data Aire computer room air conditioner, allowing rack heat loads nearing 30kW to be effectively cooled. The fans come in two sizes and are able to be interchanged if rack heat load increases.

■ Eaton Energy Saver System

Eaton announced details of its Energy Saver System technology, which it says lets large, three-phase UPSes function at 99% efficiency without sacrificing reliability. The technology is part of an Energy Advantage Architecture that is designed to reduce energy losses to nearly zero. Eaton says the Energy Saver System can pick up changes in power conditions and can more quickly and reliably transition to an appropriate mode than conventional eco-mode abilities with legacy UPS products. The company says UPSes that are part of the system can operate in standard, double-conversion, high alert, or storm detection modes, providing user-controlled functionality on demand. The Energy Saver System is available as an option with the Eaton 9395 and 9390 UPSes. Existing 9395 and 9390 units may also have the ability to upgrade to the system.

■ Optima M1 Cabinet

Optima released the M1, a cabinet enclosure designed for IT infrastructure applications. Features include an optional coffin-style door, more cabling space, low noise, perforated door panels for air intake and exhaust, and optional EMC shielding gasketing. Walled extrusions, internal reinforcing corner keys, and welded corner sockets create a durable design for rugged environments. Optima’s IT cabinet enclosures are available in multiple dimensions, from 52 to 77 inches in height and 42 inches in depth.

■ Siemon 48-port 1U Z-MAX 6A

Siemon says that its Z-MAX 6A modular patch panel is now available in a 48-port, 1U configuration and in both shielded and unshielded category 6A/class EA options. The Z-MAX 6A offers users ultra-high-density patching as well as flexibility in deploying category 6A/class EA cable infrastructures even when limited on space. Built with 10GBASE-T performance in mind, the compact panel mitigates alien crosstalk and noise



with features such as diagonal IDC (insulation displacement connector) contacts. The Z-MAX 6A uses Siemon’s Quick-Snap panel design for rapid assembly.

■ Wright Line Total Aisle Containment Suite

Wright Line released a suite of solutions for total aisle containment. The suite features Wright Line’s HCS (Heat Containment System), which cools up to 25kW or more per enclosure without having to add supple-

mental CRAC units. Solutions for both hot-aisle and cold-aisle applications are included in the suite. The suite also features the company’s end-of-row doors, which decrease the amount of wasted air that escapes near the end of the aisle; end-of-row curtains that provide partial containment of airflow within the aisle; and aisle containment ceilings, featuring tool-less brackets for easy access.

SECURITY

■ CoSoSys EndPoint Protector 2009

CoSoSys announced the 2009 version of EndPoint Protector, a tool designed to protect companies from common data portability and mobility threats. Compatible with both Windows 7 and Mac OS X Leopard, EndPoint Protector 2009 offers increased control over sensitive corporate data and an easy-to-use interface. In order to allow IT departments to control internal device use, EndPoint Protector 2009 is designed to minimize internal threats, decrease data leakage risks, and stabilize devices connected at end points.

■ DCB UT Family Encrypted Ethernet Tunnel Software Client

DCB announced the UT Family Encrypted Ethernet Tunnel Software Client for tunneling multicast through public and private networks. It’s useful for ad-hoc VLAN workstations; remote laptop users; and other common utility, field, and security applications. DCB’s UT PC client software works with UT-3300 and UT-6602 encryption servers and lets protocols communicate between the PC and the network. Operationally, the UT PC client series utilizes AES encryption, UDP/IP port firewalls, and any IP interface (wired LAN/ Wi-Fi/wireless broadband).

■ ElcomSoft Distributed Password Recovery

ElcomSoft announced updates to Distributed Password Recovery, a scalable password recovery solution. Designed to make near-instant recovery of strong encryption keys possible, enhancements to Distributed Password Recovery include multi-CPU and multi-GPU support, dictionary attacks, and password cache. The dictionary attack feature is designed to let users quickly decrypt items, which reduces the time IT workers must spend unlocking data. With password cache, users can store passwords it discovers, which helps users recover documents.

■ Computer Peripheral Systems DSL Enabler

The DSL Enabler from Computer Peripheral Systems is a security device for DSL lines. It separates the DSL’s low-frequency analog signal from the high-frequency digital signal, allowing a user with the proper touch-tone password to simply call the analog side of the DSL line to enable access to the digital spectrum, where a LAN or other digital equipment may be connected. The analog part of the line may be shared with other



standard telephone equipment. Any of CPS’ AC Power control products may also be added to control power to any or all of the equipment. A bilevel password feature lets an administrator remotely change user passwords as required. An Extended Push Button feature is also available to manually toggle the enable/disable state locally.

■ Finjan Vital Cloud & Vital Cloud Hybrid

Finjan introduced two enterprise Web security solutions that meet the needs of

enterprises and MSSPs (managed security service providers). Vital Cloud and Vital Cloud Hybrid use Finjan’s active real-time content-inspected technology to protect against crimeware and Web 2.0 attacks. Finjan’s Vital Cloud offers central control with global reach, multilayered Web security to protect the entire enterprise, instant scaling up and down as needed, and reduced TCO. Vital Cloud Hybrid integrates Amazon’s EC2 cloud-based platform with Finjan’s on-premise Web security solution, and it offers flexible deployment options as well as data privacy and compliance.

■ Fortinet FortiGate-1240B

Fortinet announced the release of its FortiGate-1240B multithreat security appliance, designed specifically for the needs of midsized enterprises. The FortiGate-1240B offers a 40Gbps firewall and a 16Gbps IPsec VPN throughput. Other features include firewall inspection of up to 2 million concurrent sessions and six storage module slots that enable up to 384GB of storage. Fortinet also announced enhancements to its FortiOS 4.0 operating system, including virus scanning, URL filtering, and enhanced data loss prevention.

■ Fortinet FortiDB 4.0

Fortinet released version 4.0 of FortiDB, its database security and compliance product. In version 4.0, Fortinet focused on making deployments and maintenance faster and easier. FortiDB 4.0’s features include a more intuitive graphical user interface, centralized policy management, and data collection methods for agent-based auditing. The architecture improves scalability and performance to help customers optimize their hardware resources for better total cost of ownership. Users can define a set of monitoring and audit policies and apply them against a group of databases for much more simplified management, the company says. Fortinet is offering a trial version of the FortiDB VA (vulnerability assessment) tool in order for customers to pretest the product before purchasing.

■ GFI Software WebMonitor 2009

GFI Software announced WebMonitor 2009, the company’s latest version of its Internet monitoring software. Designed to help small to medium-sized enterprises monitor internal Internet use to ensure a safer browsing experience and enhanced productivity, the GFI WebMonitor is able to run independently of firewalls or proxy servers. Features include the ability to run on most



Windows Server/Workstation operating systems and give users the means to monitor employee Internet activity, block access to certain sites, and protect against hidden downloads and potentially harmful payloads.

■ M86 8e6 Professional Edition Suite

M86 announced upgrades to its 8e6 Professional Edition Suite, including R3000, Enterprise Reporter, and Threat Analysis Reporter, which help protect organizations from Web-based security threats. Enhancements include a wizard-based installation, an updated user interface, and greater flexibility for configuring bandwidth policies. 8e6 Professional Edition Suite also offers Web usage reporting, URL filtering, and real-time monitoring.

■ nCircle & HITRUST Security & Configuration Auditing Service

nCircle and the HITRUST (Health Information Trust Alliance) have announced

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Upcoming IT Events

For more Upcoming IT Events, see page 3.

- [ISSA St. Louis Chapter](#)  
Nov. 17  
St. Louis, Mo.  
[stl.issa.org](#)  
.....  
[Oklahoma City AITP Chapter](#)  
Nov. 17  
Oklahoma City, Okla.  
[www.aitp.org/organization/chapters/chapterhome.jsp?chapter=40](#)  
.....  
[AITP Northeastern Wisconsin Chapter](#)  
Nov. 18, 4:15 p.m.  
Holiday Inn Select  
150 S. Nicolet Road  
Appleton, Wis.  
[new.aitp.org](#)  
.....  
[Arizona Society for Information Management](#)  
Nov. 18  
Scottsdale, Ariz.  
[www.simnet.org](#)  
.....  
[DAMA Wisconsin](#)  
Nov. 18  
DeForest, Wis.  
[www.widama.us](#)  
.....  
[ISSA Baltimore](#)  
Nov. 18, 4:30 p.m.  
Sparta Inc.  
7110 Samuel Morse Drive, Suite 200  
Columbia, Md.  
[www.issa-balt.org](#)  
.....  
[ISSA Oklahoma City](#)  
Nov. 18  
Spaghetti Warehouse  
101 E. Sheridan Ave.  
Oklahoma City, Okla.  
[www.issa-okc.org](#)  
.....  
[AITP Atlanta](#)  
Nov. 19, 5:30 p.m.  
Crowne Plaza Atlanta Perimeter NW  
6345 Powers Ferry Road NW  
Atlanta, Ga.  
[www.aitpatlanta.org/live](#)  
.....  
[AITP Baltimore](#)  
Nov. 19, 6 p.m.  
Crowne Plaza Baltimore  
2004 Greenspring Drive  
Timonium, Md.  
[www.baltimoreaitp.org](#)  
.....  
[AITP Greater Boston](#)  
Nov. 19  
[www.bostonaitp.org](#)  
.....  
[AITP Omaha](#)  
Nov. 19, 5:30 p.m.  
Seraph Corp.  
Omaha, Neb.  
[www.aitpomaha.org](#)  
.....  
[AITP Tarheel](#)  
Nov. 19, 6 p.m.  
Foothill Brewery  
638 W. 4th St.  
Winston-Salem, N.C.  
[www.aitp.org](#)  
.....  
[Boston Society for Information Management](#)  
Nov. 19  
[www.simnet.org/Chapters/Northeast/Boston/tabid/78/Default.aspx](#)  
.....  
[ICCA Kansas City](#)  
Nov. 20, 7:30 a.m.  
LePeeps  
79th and Quivira  
Lenexa, Kan.  
[www.icca-kc.org](#)
- DECEMBER -**  
[Gartner 28th Annual Data Center Conference 2009](#)  
Dec. 1-4  
Las Vegas, Nev.  
[gartner.com/us/datacenter](#)

For more than 27 years, the Gartner Data Center Conference has provided data center professionals real-world perspectives, tactics, and strategies to keep their operations running at peak performance. Our seven-track agenda drills down on servers and storage, TCO and IT operations excellence, aging infrastructures and the 21st Century data center, next-stage virtualization, consolidation, workload management, procurement, and major platforms.



PRODUCT RELEASES

*Continued from Page 5*

details concerning the HITRUST Security and Configuration Auditing Service, which nCircle will power. The Internet-accessible service will let organizations use fewer resources and spend less to ensure security of electronic patient healthcare data and demonstrate regulatory and standard compliance with the HITECH Act, HIPAA, and PCI, nCircle states. The service lets healthcare organizations audit IT systems for vulnerabilities and risks and provides step-by-step guidance on addressing such vulnerabilities. A free trial of the service is available through Nov. 15. After the trial, the service is available at \$25 per IP for 90 days of unlimited auditing for designated IP addresses. Volume discounts are also available.

■ RSA Security Operations Services

RSA, the security division of EMC, announced consultative and advisory storage security services for the large enterprise. The services, which are complemented by the company's security solutions, help enterprises effectively manage risk and IT compliance programs. The first service, Security Operations Strategy & Assessment, analyzes security gaps and makes agnostic recommendations. The Security Operations Management service helps organizations improve and document guidelines and procedures for more secure day-in, day-out operation. Finally, the Security Operations Analysis & Design service tailors an overall security solution to the requirements of the company.

■ WatchGuard Technologies XTM 8 Series

WatchGuard Technologies released the WatchGuard XTM 8 Series, the latest multifunction security appliance that the company says offers performance and protection against next-gen network, application, and data threats. In addition to 5Gbps firewall throughput suitable for 1,000 to 5,000 users, the appliance can reach faster-than-line-speed 1.2Gbps throughput with full security features activated, the company says. The appliance uses the Fireware XTM operating system, which offers full HTTPS inspection, VoIP security, and IM and P2P application blocking. Integrated advanced networking abilities include clustering, load balancing, and more enterprise-class networking features.

■ XRoads Spyware & Web Firewall

XRoads Networks announced its Spyware & Web Firewall. In addition to real-time spyware blocking, the Spyware & Web Firewall appliance includes antivirus, anti-malware, and Web content filtering capabilities. Spyware& Web Firewall also includes XRoad's MSA (multisession acceleration) technology, which accelerates Web downloads while still providing full protection against Internet and cloud-based threats.

SERVERS

■ Fujitsu & Sun Microsystems SPARC64 VII

Fujitsu and Sun Microsystems announced quad-core SPARC64 VII processors as well as an enhanced memory controller for the SPARC Enterprise server line. The faster SPARC64 VII processors offer a 25% performance increase from the previous generation. The updated SPARC Enterprise systems feature memory access enhancements, which have delivered impressive enterprise benchmark results. The updated SPARC Enterprise servers with the Solaris operating system are ideal platforms for consolidation and mission-critical enterprise applications, including large-scale databases, BIDW, ERP, and HCM (human capital management). The new processors are available as

an option for seamless upgrades in existing SPARC Enterprise servers.

■ iXsystems iX-N4224 Orion Server Series

iXsystems released the iX-N4224 Orion Server Series, which is designed for storage-intensive applications, ZFS implementations, and virtualization. The iX-N4224 Orion servers offer up to 48TB of storage with 24 hot-swappable SAS/SATA drive bays in a 4U configuration. They are expandable up to 240 drives and 480TB of storage capacity with the optional Orion JBOD expansion units. The Intel Xeon 5500 series quad-core processors adjust performance and power usage to meet the exact requirements of computing workloads. By automatically putting the CPU into the lowest available power state during low utilization periods, power is conserved. Maximum performance is delivered by the processor operating above the rated frequency to speed specific workloads. The servers feature up to 144GB of DDR3-1333 energy-efficient RAM and a Gold-level, 93% energy-efficient power supply, which reduces energy costs.

SERVICES

■ Symantec Managed Outcome

Symantec released a Managed Outcome service delivery model, which is designed to help customers better align their IT priorities with strategic business objectives to achieve measurable business outcomes. Delivered by Symantec's Global Services organization, Managed Outcome lets customers transform their IT environment from its current state to a desired future state that delivers on operational metrics and achieving greater efficiency and lower TCO. The Managed Outcome model is designed to meet agreed-upon business results based on KPIs (key performance indicators), such as measurable and improved security posture and data backup success rate. The new Managed Outcome model should also reduce IT management complexity, minimizing security risks and speeding deployment.

■ Telx Video Exchange & Cloud Federation

Telx announced new services, including its Video Exchange, which solves the problems of interprovider video. The Telx Video Exchange service provides a secure space for colocation of video equipment, interconnection to and between service providers, and access to personnel who can troubleshoot and solve problems 24x7. The Telx Cloud Federation service connects customers to key cloud providers. Telx provides colocation services in 15 locations throughout North America, offering a secure, reliable environment for customers to exchange information. Find more details at [www.telx.com](http://www.telx.com).

STORAGE

■ 3PAR Thin Conversion, Thin Persistence, Thin Copy Reclamation & Thin Reclamation For Veritas Storage Foundation

3PAR launched the 3PAR Thin Conversion, 3PAR Thin Persistence, 3PAR Thin Copy Reclamation, and 3PAR Thin Reclamation for Veritas Storage Foundation, which are all engineered to decrease the initial cost of a storage technology refresh by up to 60%. These programs are founded on the InServ Storage Server's Thin Built In Thin Engine, which is a hardware architecture and virtualization mapping engine for space reclamation, 3PAR says. Additionally, the programs are built to increase capacity utilization, boost data center efficiency, and be compatible with green IT initiatives.

■ Avere Systems FXT Series

Avere Systems announced the FXT Series of NAS appliances designed to transfer information between solid-state and HDD tiers. This will bring better performance and reduced costs, and users can avoid over-provisioning the storage capacity and inefficiently using the limited data center space and wasted power consumption. A cluster of FXT appliances stores the FTX Series active client information. To optimize performance, the FXT appliances contain both solid-state storage and traditional spinning media, which also won't compromise all types of workloads.

■ BakBone NetVault: Backup 8.5 & NetVault: SmartDisk

BakBone announced version 8.5 of its universal data management solution, NetVault: Backup. BakBone also announced enhancements to NetVault: SmartDisk, its disk-based backup solution. These include deduplication and encryption capabilities, reduced storage costs, and faster deployment. NetVault: Backup 8.5 includes advanced security features, a new Hyper-V plug-in, and extended platform support.

■ Bus-Tech & Sepaton Partnership

Bus-Tech, a supplier of VTL controllers for IBM and compatible mainframes, and Sepaton, which provides enterprise-class disk-based data-protection products, have partnered to make it possible for companies' mainframe environments to seamlessly use disk-based backup and recovery without changing backup policies. The partnership includes Sepaton's S2100-ES2 VTL and Bus-Tech's MDL 100V for direct-to-VTL connectivity for ESCON and FICON mainframe users. The companies say that by combining VTL with direct-to-tape mainframe connectivity products, customers will benefit from leading backup and restore times, scalability, easier data management, and extensibility across the enterprise.

■ DataCore Software New Business Continuity Starter SAN

DataCore Software announced the Business Continuity Starter SAN package as well as new capabilities. Features include ASR (Advanced Site Recovery), a simple preconfigured VSA (Virtual SAN Appliance), Citrix Essentials StorageLink adapter for Hyper-V and XenServer, and support for FCoE (Fibre Channel over Ethernet). DataCare also announced a number of promotions, including academic programs offering 50% educational discounts, the opportunity to revitalize existing arrays or SANs, a promotion for 1TB Starter SAN Software, and other special government programs and discounts.

■ Diskeeper 2010 Performance Software

Diskeeper Corp. announced Diskeeper 2010 Performance Software—the only product that actually prevents fragmentation before it happens. Utilizing a new revolutionary technology called IntelliWrite™, Diskeeper 2010 intelligently writes files to the disk to prevent up to 85% of fragmentation from occurring. Coupled with Diskeeper software's defragmentation technology, Diskeeper 2010 delivers a complete performance solution for every Windows system at every site and goes far beyond what defragmentation alone can achieve. The benefits of Diskeeper 2010 include dramatically improved system performance from faster file reads and writes. By curtailing the excessive I/Os associated with fragmentation, wear and tear on the drive is greatly reduced, resulting in extended hardware life. Through preventive measures to avoid fragmentation, enterprises can also reduce costly energy consumption and cooling.

■ EMC Data Domain DD630, DD610, DD140

Targeting the entry-level and midrange market segments, EMC announced its latest EMC Data Domain deduplication systems, the DD630, DD610, and DD140. The multi-core-powered models are based on Data Domain's SISL (Stream Informed Segment Layout) scaling architecture. Midsized enterprises can reduce their backup windows by up to 50% with the DD630 and DD610, which offer up to 1.1TB and 675GB per hour of inline deduplicated storage throughput, respectively. The entry-level DD140 comes with Data Domain Replicator software for remote site protection.

■ ExaGrid Systems EX10000E 10TB

ExaGrid Systems released the EX10000E 10TB, a disk backup server with 10TB for full backups. The company also upgraded its GRID software to expand the maximum number of servers in a GRID configuration to 10. ExaGrid says it's the only vendor now providing this type of performance and capacity in a NAS-based disk backup system with deduplication starting at an \$85,000 list price. Various features include the ability to combine up to 10 ExaGrid servers in a virtualized 100TB GRID system, automatic balancing of data loads across all servers in the GRID, backup throughput of up to 18TB per hour in a fully configured GRID, restore throughput of up to 14.4TB per hour, a single centralized Web user interface with one login, modular systems that can be combined in a virtualized GRID, and backward capability with prior-generation systems. The 4Urackmount EX10000E uses 50% less power on average than previous-generation configurations, the company adds.

■ IBM System Storage DS8700

IBM introduced the System Storage DS8700 high-end storage array. The DS8700 features the dual IBM POWER6-based controllers, an internal fabric interconnect, and upgraded device adapters enabling improvements in performance and power savings that become evident in even the most demanding enterprise applications. Customers can also upgrade to the most advanced arrays without disruption, which lets them grow their capacity on demand without investing in new systems. The DS8700 is fully interoperable with the prior model's hard drives, enclosures, tools, scripts, and copy services, making upgrading as painless as possible.

■ Kroll Ontrack Ontrack PowerControls 5.2

Kroll Ontrack released Ontrack PowerControls version 5.2 that provides database administrators with search, locate, consolidation, and restore tools for Microsoft Office SharePoint Server 2007 and SharePoint documents. Ontrack PowerControls 5.2 features full site restoration, copy and export functionality, advanced search and preview abilities, SQL 2008 support, and centralized licensing. Centralized license deployment allows for IT flexibility during data center growth. The ability to drag and drop a full SharePoint site streamlines restoration and consolidation for granular items.

■ NEI S-1900 R2

NEI released the S-1900 R2 appliance with dual multicore Intel Xeon 5500 processors and two 650W AC power supplies. Primary features include four hot-swappable SATA/SAS hard drives (up to 4TB of storage), 12 slots of DDR3 memory, and two full-height, full-length PCI-E expansion slots. Able to host both Windows and Linux operating systems, the S-1900 R2 is compatible with up to eight processing cores for each system.

■ Overland Storage NEOs

Overland Storage unveiled the NEOs family of automated tape libraries, which is



PRODUCT RELEASES

designed to meet the backup, disaster recovery, and archive needs of small to medium-sized organizations. The NEOs family consists of the NEO 200s, which comes in two models (a one-drive, 12-cartridge auto-loader and a one- or two-drive, 24-cartridge library), and the NEO 400s, available with up to four tape drives and up to 48 cartridges. The NEO 200s is a 2U model that supports up to 38.4TB of capacity. The 400s is a 4U device that supports up to 76.8TB of capacity. Overland Storage's offerings also include Web-based remote management and diagnostics, removable cartridge magazines, an integrated barcode reader, user-configurable mail slots, expandability for increased capacity as data storage needs change, and file encryption.

■ ParaScale & Moonwalk ParaScale Cloud

ParaScale and Moonwalk have partnered to create the ParaScale cloud, an integrated storage management solution designed to allow companies to offload infrequently accessed data to the cloud. The ParaScale cloud runs on Linux hardware and allows users to test out the product on a small scale and scale to up to a petabyte of storage with no downtime. Other features include the ability to define data migration rules based on data attributes and run simulations to determine the savings in storage capacity of primary storage before doing the actual migration.

■ Revinetix RevOS 3.2

Revinetix announced the latest version of its RevOS backup appliance application. RevOS 3.2 advanced data protection software ships with the Revinetix network-attached D2D2D disk backup appliance to enable users at small and medium-sized

enterprises to perform data deduplication, backup, archiving, and data recovery operations. Features include byte-level replication, data deduplication, and support for the ability to deploy a WAN DR (disaster recovery) strategy. RevOS handles the backup, archive, and recovery capabilities for all local and remote machines connected to the network.

■ Rorke Data 24-bay 8Gb Fibre Channel InfiniBand RAID

Rorke Data announced the expansion of its engineering services along with the launch of the New Galaxy Aurora. Since 1985, Rorke Data has been successfully bringing you easy-to-install storage solutions and now continues that effort with the Galaxy Aurora 24-bay 8Gb Fibre Channel InfiniBand RAID. Preconfigured, tested, and customized in our ISO 9001 integration facility, your Aurora is ready to use out of the box. Rorke Data's Engineering Services delivers a unique value proposition for our customers. We offer maximum uptime service agreements, installation, training, and extended equipment warranty options.

■ Quantum DXi6500

Quantum released the DXi6500 family of NAS backup appliances for midrange users seeking to deploy a data deduplication platform. The company says the family provides a turnkey approach that delivers all the benefits of advanced deduplication technology. The family includes five preconfigured appliance models with 3TB to 30TB capacities. In addition to offering a NAS interface, each model was designed so that end users or resellers can install them, with even larger models being easily scalable without a

service visit necessary. The DXi6500 family also supports integration with such leading backup software packages as NetBackup via Symantec's OpenStorage API. Additionally, each model includes Quantum esXpress software for optimized backup of VMware environments.

■ Seagate BlackArmor NAS 110

Seagate launched the BlackArmor NAS 110 network storage server, which is ideal for small enterprises. The BlackArmor NAS 110 features backup and protection for up to 10<sup>2</sup> network-connected PCs, support for Windows Server 2008, the ability to stream and share media files and documents from computers on a network, a Web-based management interface, Wiki server support, instant file duplication, full system recovery in the event of a crash or failure with SafetyDrill+ software, event notification, and two spare USB ports for connecting external devices.

■ SGI InfiniteStorage NAS & LiveSAN

SGI announced two storage offerings, SGI InfiniteStorage NAS and LiveSAN, which fit into the SGO InfiniteStorage Total Control Suite. InfiniteStorage NAS is a high-performance NAS hardware platform that supports the storage needs of shared data environments and is designed for maximum scalability. LiveSAN is a block-level storage virtualization suite that offers control over any SAN environment. LiveSAN includes heterogeneous data services, multilevel data protection, and nondisruptive thin provisioning.

■ StoredIQ 5.0 Appliance

StoredIQ's latest 5.0 appliance packs e-discovery, records management, information

governance, and storage management enterprise functionality and features such as classification-based access control and better workflow between legal and IT departments. Other features of the v5.0 release include scalable storage architecture using standard NAS devices, automated systems management event notification, folder-based navigation, and dashboards that can be centrally managed.

■ Sun Microsystems Sun Storage 6180 Array


Sun Microsystems unveiled the latest addition to its disk storage portfolio, the Sun Storage 6180 Array. A cost-effective and high-performance offering, it boasts a 50% performance increase from the previous Sun model and uses fewer drives.

■ Sun Microsystems Sun Storage F5100 Flash Array

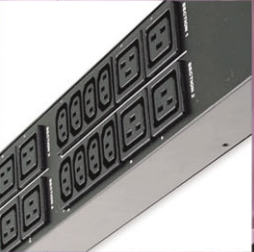


Sun Microsystems announced the Sun Storage F5100 Flash Array, which accelerates Oracle and MySQL database workloads. The Sun Storage F5100 Flash Array can shuttle data at up to 12.8GBps and boasts 1.6 million read I/Ops and 1.2 million write I/Ops, the company says. It features up to 2TB of solid-state flash capacity, fits in a single rack unit, and draws only 300W of power.

■ Winchester Systems FlashDisk FC-3400

Winchester Systems announced that the 10th generation of its FlashDisk FC-3400 Fibre Channel disk array can now expand to 426TB of capacity with up to 224 SATA and Fibre Channel drives. When fully scaled up, the system comprises 14 shelves of 3U height each.



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# Power & Cooling Capacity Planning

*Continued from Page 1*

and therefore approaching wattage use that’s closer to the maximum usage, says Jim Scherr, director of sales and operations at PDUs Direct ([www.pdusdirect.com](http://www.pdusdirect.com)).

“Equipment manufacturers provide estimated power consumption in the specs of their products,” Scherr says. “These vary widely depending on the types of products and application. The watts described in the specs are usually top-end, so in normal usage—dependent on application—they can run significantly less.”

Like the specifications, manufacturer-provided programs designed to determine power and cooling requirements also tend to deliver estimations on the high end of the scale. Dennis Julian, a principal with Integrated Design Group ([www.idgroupae.com](http://www.idgroupae.com)), says that when considering the electrical service load to the space, you can assume that the percentage of actual load is lower than when considering the power to an individual rack.

“Any rack can operate at full load, but the likelihood of all racks operating at maximum load is less probable due to the diversity of equipment types and loads of that equipment,” Julian says. “If the design is for a very homogenous environment—such as research computing or bulk processing—then the average rack load will approach the maximum work load. For a new buildout, a maximum and average rack load should be determined based on the expected equipment to be installed.”

In turn, that maximum rack load will not only help to determine the typical circuit capacity for each rack but also the type of cooling system required. According to Scherr, the standard for cooling traditionally was one watt of cooling for every watt of

problems when trying to cool highly dense racks. In such cases, supplemental cooling might be needed to address hot spots that materialize on the data center floor.

### Plan Ahead

Figuring the correct amount of power and cooling for your current infrastructure is only one piece of the puzzle, because inevitable equipment variations over time require that your data center can roll with any changes. In particular, power is the

## Watch For Pitfalls

Establishing the correct amount of power and cooling for a data center is certainly challenging, but it’s also fraught with potential peril. Jim Scherr, director of sales and operations at PDUs Direct ([www.pdusdirect.com](http://www.pdusdirect.com)), identifies common pitfalls encountered in the planning process.

Insufficient circuit size. If you run low-voltage, low-amperage power to the racks, you could quickly run out of capacity. Envision your maximum size and place circuits accord-

ingly. You may pay a little more up front in capitalized cost, but it will be less than adding them after the fact.

Basing the usage on manufacturer specs. Specs are published at maximum usage and load, but equipment usually operates at a much lower level. If you plan for 6,000 watts in a cabinet, the specs may indicate you can operate only 10 servers per rack. However, if you measure and monitor your actual consumption, you may find you can operate 15 servers per rack.

Insufficient outlets. Ensure your PDUs have enough outlets to run the circuit close to the derated maximum load. You do not want to have a circuit at half capacity and no more outlets.

Limited cooling limits growth. Install more cooling than you initially need. No one wants to limit their growth because they can’t cool the room. Leave space for future additional coolers if possible or build big from the onset.

equipment power, but that has changed as the heat differential between the front and back of racks has significantly increased. Today, hot/cold aisle designs are generally favored over entire-room cooling, but Scherr says even that approach can run into

most important element when it comes to ensuring that a data center can accommodate future changes.

“There are many ways to populate a data center with high- or low-density equipment and local supplemental cooling

[such as in-row, above-row, rear-door heat exchanger, or cabinets with supplemental cooling],” says Julian. “The one overriding limiting factor is power capacity. With adequate power, space and cooling limitations can most likely be overcome. High-density equipment may be more power-efficient but will need appropriate cooling—if these technologies use less space, then additional equipment can be installed, thus raising the total power used.”

Kightlinger adds that although it’s necessary to plan for growth, that growth might not occur in the way you expect. He recommends anticipating higher power and heat densities at the rack, row, and zone levels and ensuring that the infrastructure plan includes everything from the incoming utility to switchgear to the size of the generator, chiller plants, and UPS systems. According to Scherr, power companies can limit available power in certain locations due to local infrastructure constraints, so he advises checking with the utility provider to assess capacity and possibly devise an agreement for future power needs.

Whereas future changes in power requirements can be addressed before those changes occur by implementing power systems that can accommodate change, cooling can be trickier. However, it’s still possible to build a cooling infrastructure with future change in mind. For example, Scherr notes that it can be wise to pre-plumb a data center with water (for potential water cooling) and leave space for a future water chiller.

“Research, research, research,” Scherr says. “Know your applications and where you plan to go. Know your power consumption—don’t just use specs; test the product. Plan for future growth, then double [the capacity].”

# Firewall Auditing Tools

*Continued from Page 1*

upwards of 80% of the firewalls examined in a breach investigation are misconfigured.” He concludes that today’s complex and heterogeneous network environment

### Key Points

- Compliance requirements such as PCI DSS requiring regular review of firewall and router access policies are driving interest in firewall audit and automation software.
- The complexity of most rulebases, which often exceed 1,000 entries, make auditing and managing firewall configurations and security policy extremely challenging without automation.
- Audit and automation tools are designed to work with specific firewall and router products, so a critical evaluation criterion is whether a product supports an SME’s installed fleet of security devices.

makes manually auditing firewalls nearly impossible. Enter automated firewall auditing and management tools.

### Benefits

Firewall automation software provides three main benefits, according to Ruvy Kitov, CEO of Tufin ([www.tufin.com](http://www.tufin.com)), a leading vendor in the market. Firewall automation software improves the quality and consistency of firewall management, particularly in a multidevice, multivendor environment; it ensures that all configuration changes are in line with corporate security policy; and it automates many manual, repetitive administrative tasks. As a result, Kitov says, “Instead of preparing for a PCI audit in two weeks, you can do it

in two hours.” Kindervag sees audit requirements, notably PCI’s, for up-to-date rules as being the biggest driver behind audit and automation software adoption. “These tools have come to the forefront because of compliance,” he adds.

Echoing the Notre Dame researchers, Kitov says, “it’s almost impossible to look at a firewall ACL that’s a thousand lines long and understand what it’s doing.” Using an automation tool both reduces the time needed to analyze and implement rule changes and improves the strength of the resulting firewall policy, allowing administrators to make better security decisions. Improvements in operational and administrative efficiency can be upwards of 95%, according to Kitov, which translates to lower costs and faster incident response.

Despite the advantages, Notre Dame’s researchers found 89% of respondents don’t use audit tools to detect orphaned firewall rules, and a meager 2% use fully automated processes. Not surprisingly, those 2% are also the more experienced personnel and most vigilant about firewall management. “Those administrators who do use an automated process to detect orphaned firewall

rules are more than twice as likely (91% vs. 45%) to perform annual ruleset reviews than their counterparts,” they write, adding they “are twice as likely to hold a professional security certification.”

### Key Product Features & Evaluation Criteria

According to Kindervag, automation tools start by importing firewall configuration information and then compare them with a set of best practices. They also typically correlate the configuration with log data to determine if there are unused or orphaned rules that can be safely eliminated, rules in the wrong order (recall that firewall rules default to “deny everything” and pass traffic as they hit a match), or rules that create unnecessary security exposure. “Think of it as an AI agent for firewalls,” he adds. These capabilities—the ability to find unused rules, optimize the rulebase, and produce audit reports—are the three essential product features, according to Kindervag. Kitov would add a couple more, including the automation of administrative tasks and enforcement of administrative governance processes.

Given the relative immaturity of the product category, there is wide variation of added features across vendors, but Kindervag sees some sophisticated capabilities

becoming more common. These include the ability to produce detailed compliance reports (such as for Sarbox and PCI), integrate with help desk ticketing systems, enforce a change management process, and conduct real-time rule monitoring or simulation of proposed new policies and support for routers, switches, and other network security devices. Because audit tools work in conjunction with existing firewalls and routers, perhaps the most important evaluation criteria is whether a given product supports a network’s installed base of security devices. Though pricing can vary widely, the software is typically licensed according to the number of devices under management.

### Integration Issues/Considerations

Kitov says firewall audit and automation tools typically run on a dedicated server (usually a virtual machine) or appliance and use several protocols to interface with supported devices and pull configuration information; typically, a firewall’s proprietary API, or standard network protocols such as SNMP or SSH sessions. Most products support all the popular firewall and router vendors, so Kindervag says integrating these tools “is a fairly straightforward thing.”

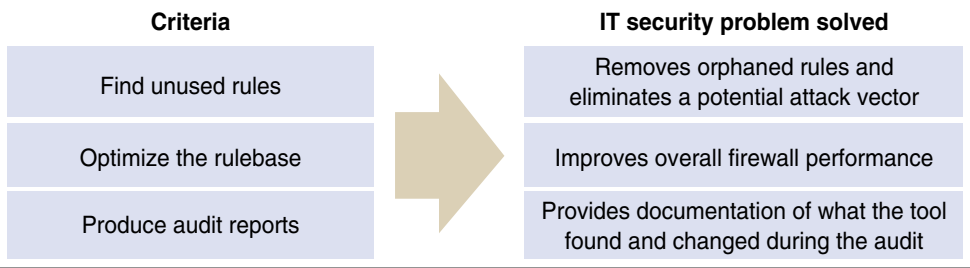
Firewall auditing and management software is still a small market, which Kindervag estimates at about \$30 million to \$35 million this year; however, Kitov sees the products gaining mass appeal. Although primarily appealing to larger enterprises with complex, heterogeneous networks and devices, Kitov also sees growth with smaller companies with low risk tolerance.

Companies facing strict network security compliance requirements will want to investigate these tools for their audit capabilities if nothing else. Risk-averse firms and those with large networks, complex firewall policies, or an array of different security appliances will undoubtedly find the ability to centrally manage, optimize, and automate network security policies compelling.

## Typical Features

Forrester believes that there are three baseline requirements that must be met in order to be considered a firewall auditing tool.

SOURCE: “MARKET OVERVIEW: FIREWALL AUDITING TOOLS”; FORRESTER RESEARCH REPORT BY JOHN KINDERVAG; JULY 30, 2009.





# ENCLOSURES & RACKS

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## CYBER SWITCHING ePOWER PDUs

**NEW PRODUCT**

by Joanna Safford



### Cyber Switching ePower PDUs

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## Make The Switch To An Energy-Efficient Environment

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The full-color LCD touchscreen provides real-time power use data (complete with wizard guides and alerts), so data center managers can increase uptime without wasting valuable enterprise resources. This interface lets users configure input, bank, and outlet PDU hierarchies. To create a green infrastructure,

the ePower PDUs are designed to reduce CO2 emissions per outlet.

ePower PDUs focus on productivity while remaining budget-friendly. Ward Patton, senior account manager at Cyber Switching, says, "With the granular, accurate information gathered by the ePower, power costs can be allocated to specific projects, business units, or clients (in a colocation environment, for example).

"Also, power draw that is extraordinarily high can be detected, identifying opportunities to reduce loads and lower your energy bill," he says. "This is increasingly desired in environments where budget is tight and every kW dropped helps the bottom line."




In addition to the energy-friendly facets, the ePower PDUs feature Cyber Switching's Cyber Breaker® technology that triggers outlets if power limits are breached. As result, the amperage surplus is confined to the individual outlet to maintain peak performance.

Two high-speed USB ports offer support for 127 USB devices when utilizing standard hubs. ePower PDUs allow for more than 60 high-density PDU configurations.





# KVM Switches

Product	ATEN KH2516 Altusen KVM Switch	ATEN KN4140v Altusen KVM Over The NET	Belkin F1DN102D OmniView Secure DVI KVM Switch
			
Description	<p>ATEN's Altusen CAT 5 High Density Switch features 16 computer port configurations for complete KVM connectivity from a CAT 5e/6 cable. The KH2516 is housed in a 1U form factor for convenient rack mounting.</p> <ul style="list-style-type: none"><li>• Capable of expansion to provide control of up to 4,096 computers</li><li>• Dual bus consoles for two simultaneous and independent operators</li><li>• CAT 5 links up to 130 feet between KVM and servers</li><li>• Allows for port-by-port setup of user account access rights</li></ul> <p><b>Best For:</b> IT administrators who need to control a large group of computers from a single KVM.</p> <p><b>Price:</b> \$799.95</p>	<p>This Altusen KVM Over The NET switch offers dual onboard NICs and dual power supplies for 24/7 reliability. It also includes four temperature sensors to regulate up to six fans based on room temperature.</p> <ul style="list-style-type: none"><li>• Monitor screen displays of up to 40 servers</li><li>• On-screen keyboard selection</li><li>• Dual LAN and power ports</li><li>• Resizable screen for remote use</li></ul> <p><b>Best For:</b> IT managers who need to reliably manage server rooms and data centers from a distance.</p> <p><b>Price:</b> \$7,195.95</p>	<p>Designed for military, intelligence, and federal agency installations, this two-port OmniView Secure DVI KVM Switch is NIAP-certified to ensure data integrity when switching between computers operating at different security levels.</p> <ul style="list-style-type: none"><li>• Supports Common Criteria EAL 4+ and augmented with ALC_FLR.3</li><li>• Dual-link DVI-D delivers video resolution up to 2,560 x 1,600</li><li>• No memory buffer</li><li>• Nonreprogrammable firmware</li></ul> <p><b>Best For:</b> Those who must conform to the latest security protocols when switching between two computers.</p> <p><b>Price:</b> \$499</p>
Contact	(888) 999-2836 www.aten-usa.com	(888) 999-2836 www.aten-usa.com	(800) 223-5546 www.belkin.com

Product	logear GCS1716 16-Port MiniView Ultra+	Opengear IP-KVM1001	StarTech SV3254DX4I CAT 5 Matrix IP KVM Switch
			
Description	<p>This 16-port KVM switch features logear's ASIC technology that provides an auto sensing function to recognize the position of each station in the installation, so you don't need to manually set the position with DIP switches.</p> <ul style="list-style-type: none"><li>• Multiplatform OS support (Windows, Mac, Sun Solaris, and Linux)</li><li>• Computer selection via front panel LEDs</li><li>• Two-level password protection for OSD</li><li>• Maximum video resolution of 2,048 x 1,536</li></ul> <p><b>Best For:</b> Enterprises that want to streamline the organization of a large, or expanding, server operation.</p> <p><b>Price:</b> \$549.95</p>	<p>This palm-sized, single-port KVM device can be used at the rack or remotely over IP. Additionally, it offers full control of systems during bootup, BIOS, and server lockups.</p> <ul style="list-style-type: none"><li>• No client software; secure, encrypted browser sessions with authentication</li><li>• USB and PS/2 interfaces</li><li>• Virtual media support</li><li>• Serial port for console access to switches, routers, PBXes, or an external modem.</li></ul> <p><b>Best For:</b> Enterprises that need a 1-port KVM over IP device that gives them the flexibility to add remote KVM access to one server at a time.</p> <p><b>Price:</b> \$345</p>	<p>The four-user, 32-port CAT 5 Matrix IP KVM switch gives you control of connected servers, devices, and services through your local network infrastructure. You can reboot the system, access the BIOS, and install applications or operating systems.</p> <ul style="list-style-type: none"><li>• Simultaneous remote control of any of the 32 ports by four remote IP users</li><li>• Virtual media support</li><li>• USB 2.0 allows for emulation and remote installations of software and operating systems</li><li>• Open-source architecture eliminates "cost per port" licensing and ongoing fees</li></ul> <p><b>Best For:</b> Enterprise users who need to save time and resources by having remote control over all the equipment on their local network</p> <p><b>Price:</b> \$4,255.99</p>
Contact	(866) 946-4327 www.iogear.com	(888) 346-6853 www.opengear.com	(800) 265-1844 www.startech.com



PRODUCT SPOTLIGHT

PHYSICAL INFRASTRUCTURE

Processor’s Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Nathan Lake

## Belkin F1DP232G OmniView IP 5232K KVM Switch



- The OmniView IP 5232K KVM Switch can control up to 32 servers. Up to two administrators can remotely access the switch as easily as one local administrator.
- Provides access from LAN, WAN, or Internet when using Firefox or Internet Explorer
  - Out-of-band BIOS-level access
  - Remote hard reboot
  - Support for virtual media technology for up to two servers

**Best For:** Enterprises that need to give multiple administrators remote access to computers connected to the KVM switch.

**Price:** \$3,199

(800) 223-5546  
www.belkin.com

## Black Box KVIP2032A ServReach KVMultiport KVMoIP



- The 2 x 32 ServReach KVMultiport KVMoIP enables one local and two remote users to access and control up to 32 servers over the Internet. The units extend KVM switching up to 100 feet over CAT 5 cable to your servers.
- Troubleshoot, reboot, manage, or configure your servers from anywhere in the world
  - No software to install; only needs Internet Explorer 6.0 or higher
  - 1U high to rackmount in server cabinet
  - Supports 1,600 x 1,200 at 85Hz

**Best For:** Enterprises that need BIOS-level control of USB or PS/2 servers.

**Price:** \$3,495.95

(877) 877-2269  
www.blackbox.com

## Iogear GCS1758 8-Port MiniView Ultra+



- The MiniView Ultra+ supports up to eight Windows-, Sun Solaris-, Mac-, or Linux-based systems, and it supports the special keys on Sun and Apple keyboards. The GCS1758 casing fits into a 1U, 19-inch rack mount.
- Audio support allows sharing of multimedia speakers and microphone
  - Can hot-swap and auto-detect device changes
  - LED display for simple status monitoring
  - Desktop- or rack-mountable

**Best For:** Enterprises with computers that run a variety of OSes and need to be controlled from a single console.

**Price:** \$359.95

(866) 946-4327  
www.iogear.com

## TRENDnet TK-804R 8-Port USB KVM Switch



- This rackmount, 8-port KVM switch supports USB and PS/2 interfaces on the console side and USB on the PC side. Users can switch between PCs using hotkeys, push buttons, or the on-screen display for flexible management.
- 8-port stackable KVM switch with VGA and USB connection to computers
  - Device monitoring with adjustable Auto-Scan, audible feedback, and the ability to cascade up to 64 computers
  - Supports most operating systems and advanced mouse designs

**Best For:** IT staff looking for an affordable KVM switch with an on-screen display to make it easy to manage multiple PCs.

**Price:** \$265

(310) 961-5500  
www.trendnet.com

## TRENDnet TK-IP101 1-Port KVM Switch Over IP



- TRENDnet’s 1-Port KVM Switch Over IP eliminates the need to physically be in the server room to troubleshoot, reboot, or edit preboot functions.
- Manage multiple servers from your network or remotely from any Internet connection
  - IP-based remote control server management for Windows- and Java-based clients
  - An intuitive Web interface provides controls from BIOS-level functions to Windows-based applications
  - With up to 16 active user accounts, the TK-IP101 supports four concurrent logins

**Best For:** Data centers looking for cost-effective remote server management for multiple users.

**Price:** \$499

(310) 961-5500  
www.trendnet.com

## TRENDnet TK-RP08 8-Outlet Remote Power Controller



- The 8-Outlet Remote Power Controller provides remote on/off power control for devices on your network, and it works with TRENDnet’s TK-IP101 KVM switch to facilitate remote power cycling and rebooting.
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  - Save resources by performing power management from one computer
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  - Eight green and red LED indicators display on/off and power failure status

**Best For:** IT staff who need to service and reboot PCs from any location.

**Price:** \$275

(310) 961-5500  
www.trendnet.com





PHYSICAL INFRASTRUCTURE




PRODUCT SPOTLIGHT

Processor's Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Kristina Brambila

# Data Center Fire Suppression

Product	Fike ECARO-25	Fireaway Stat-X Electrically Operated Units	Fireaway Stat-X Thermal Units
			
Description	<p>Fike's ECARO-25 pairs DuPont's FE-25 fire extinguishing agent with Fike's rupture-disc valve to offer greater agent coverage and distribution. Unlike sprinkler systems, the FE-25 agent is safe for sensitive computer equipment. The agent also won't harm facility workers and is environmentally friendly, with zero ozone depletion potential.</p> <ul style="list-style-type: none"><li>• Colorless, odorless, and leaves no residue, requiring no cleanup</li><li>• Minimizes business downtime due to fire</li><li>• Can be used in occupied and unoccupied spaces</li><li>• Electrically nonconductive</li></ul> <p><b>Best For:</b> IT systems, telecommunications centers, control rooms, computer rooms, and media storage.</p>	<p>Stat-X Electrically Operated Units from Fireaway produce an ultra-fine potassium-based aerosol that is safe for electronic equipment or magnetic media. Electrically operated units can be manually or automatically activated and, unlike gaseous systems, do not require pressure vessels or piping. In addition, electrically operated units are lighter and take up less space than other extinguishing agents.</p> <ul style="list-style-type: none"><li>• Suitable for enclosed facilities and local applications</li><li>• Non-harmful for personnel</li><li>• Can be quickly vented after discharge for easy post-fire cleanup</li><li>• Environmentally friendly with zero ozone depletion potential</li></ul> <p><b>Best For:</b> Critical applications across a wide range of industries, including data processing facilities, process control rooms, and telecommunications facilities.</p>	<p>Fireaway's Stat-X Thermal Units emit an ultra-fine potassium-based aerosol that won't harm sensitive electronic equipment or magnetic media. Thermally operated units integrate a thermal detector that automatically activates the unit in a fire situation. Thermal units can also be manually activated. Thermally operated units have a low installation cost, are virtually maintenance-free, and have a shelf life of more than 10 years.</p> <ul style="list-style-type: none"><li>• Easy installation that doesn't require pressure vessels, piping, or installation manpower</li><li>• Occupies less space than other extinguishing agents</li><li>• Environmentally friendly with zero ozone depletion potential</li><li>• Favorably reviewed by EPA for SNAP listing</li></ul> <p><b>Best For:</b> Electronic cabinets, data processing equipment, and printing equipment.</p>
Contact	(816) 229-3405 www.fike.com	(952) 935-9745 www.statx.com	(952) 935-9745 www.statx.com

Product	FireXonline OnGard	Periphman Aero-K	Xtralis VESDA VFT-15
			
Description	<p>The OnGard fire protection system from FireXonline consists primarily of a tank filled with fire-suppressing agent. A tube connected to the tank delivers the suppression agent directly to a potential fire site, such as the inside of a rack enclosure. When a fire is detected, the tube will rupture and release the agent into the area. Extinguishing a fire at the source may eliminate the need to discharge a computer room's larger suppression system.</p> <ul style="list-style-type: none"><li>• Penetrates hard-to-reach areas</li><li>• Detects and extinguishes fires in less than 10 seconds</li><li>• Reduces amount of downtime caused by data center fire</li></ul> <p><b>Best For:</b> Data centers, computer rooms, and communication facilities.</p>	<p>Periphman's Aero-K fire suppression system uses potassium-based aerosol generators that can extinguish a fire in seconds. The aerosol won't harm electronics or electronic media such as tapes and disks or the health of facility personnel. Aero-K aerosol generators are compact and easy to install and feature multiple smoke detectors that limit the chance of accidental discharge.</p> <ul style="list-style-type: none"><li>• Won't corrode steel, plastic, nickel, brass, zinc, copper, aluminum, or other commonly used composites</li><li>• Leaves little residue after venting</li><li>• Ecologically friendly with no agents that can harm the ozone layer</li><li>• Control panel with battery backup in case of power outage</li></ul> <p><b>Best For:</b> Information technology and telecommunications industries.</p>	<p>The Xtralis VESDA VFT-15 is an aspirating smoke detector that provides high-sensitivity fire detection through the use of flexible microbore sampling tubes that intelligently monitor up to 15 locations, which enables faster response to a potential fire or environmental event, minimizes downtime, and enhances investigations.</p> <ul style="list-style-type: none"><li>• Minimizes business disruption and downtime</li><li>• Provides localization of smoke: return air grille, duct, ceiling, enclosed cabinets</li><li>• Four alarms: Alert, Action, Fire 1, and Fire 2</li><li>• High sensitivity ranging from 0.0003 to 6.1% obscuration per foot</li><li>• Coverage area of up to 16,150 square feet</li></ul> <p><b>Best For:</b> Data centers, correctional facilities, and nuclear plants.</p>
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# Key Power & Cooling Terms Defined

Brush Up On Your Infrastructure Lexicon

by Elizabeth Millard

WHEN NAVIGATING the realm of power and cooling, the terminology can get complicated quickly, particularly when general terms such as “efficiency” get thrown around. Here are some definitions to help simplify the conversation.

Energy Conservation/Efficiency

Experts and consultants often tout efficiency as a data center goal, but there’s a

optimizing the operation of the cooling system so that it provides the level of data center cooling desired using less energy overall. He adds, “Today, this is possible using advanced control technologies combined with persistent optimization and ongoing measurement and verification.”

PUE & DCiE

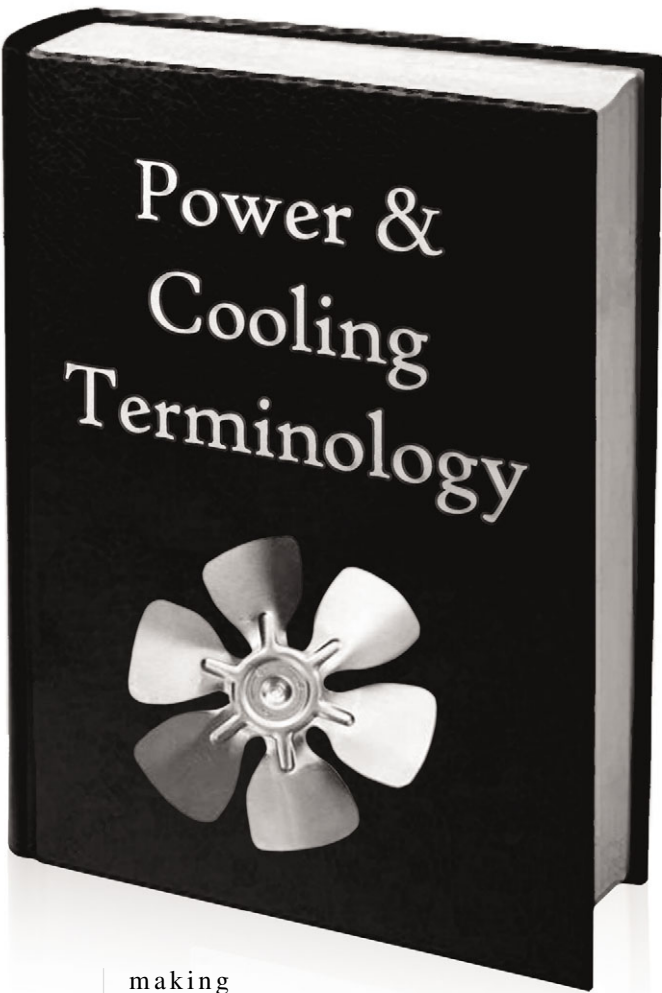
In order to gauge whether a data center is actually as efficient as it could be, PUE (power usage effectiveness) must be measured, notes Ben Stewart, senior vice president of facilities engineering at Terremark (www.terremark.com). The term refers to the measurement of the cause and effect of strategies for power and cooling.

For example, a data center can measure its current power usage and then block all bypass air in the cable openings in the raised floor or below floor openings and also contain the cold aisle by allowing the cold air to exist only in front of the cooled devices. After those tactics are in place, PUE can be measured through monitoring tools or even utility bills to see if there’s a change.

PUE is a benchmarking standard along with DCiE (data center infrastructure efficiency), both proposed by the Green Grid (www.thegreengrid.org). Other efficiency benchmarks exist, as well, such as The Uptime Institute’s Corporate Average Data Center Efficiency, or CADE.

“Lights Out” Data Center

A climate-controlled computer or server room with extremely limited access is often called a “lights out” area because it can utilize fewer actual lights, but that’s not the only advantage. With fewer people coming in and out of the room, less air escapes,



making cooling more efficient and allowing for tighter security.

The strategy has attracted some controversy, though. Some advocates of the approach—including Google—believe that having few people with access is an advantage, while others believe the opposite is true. For example, Kevin Timmons, Yahoo!’s vice president of operations, has noted that the company sees benefits in having people in the data center 24 hours a day.

Liquid Cooling

This general term refers to cooling technology that uses a liquid circulation system rather than a condenser. Previously, it was known as water cooling and was mainly used only for mainframe computers, but with different liquid types used today, “liquid cooling” is now more standard.

“Liquid-cooled options seem to be coming in two flavors, with a very small number of service providers willing to consider it or allowing it inside the data center,” says Steve Prather, senior vice president of sales engineering and operations for ViaWest (www.viawest.net), a colocation and managed service provider.

One “flavor” is cabinets that provide a standalone liquid-cooled radiator acting as a rear door to allow high-density power delivery into traditional cabinets. The other is a liquid-cooled infrastructure that ties

into existing data center liquid cooling infrastructure. Prather notes, “While these options provide a very aggressive cooling capability, they significantly increase risk for the service provider and all other customers installed in the space, due to the fact that water and electricity do not mix.”

Right-Sizing

There’s a good deal of talk in the industry about optimizing IT resources through consolidation and virtualization, and the same principle applies to facilities infrastructure, notes Michael Hogan, global offering manager of site and facilities services at IBM. Right-sizing refers to optimizing data center power and cooling in the same way that network resources can be scaled and made more efficient through a strategy such as virtualization.

“By right-sizing the cooling and power systems, you could achieve 20% or more in annual energy savings,” he says. These solutions can include the use of supplemental cooling techniques, such as adding a rear-door heat exchanger or the use of close-coupled solutions (see the “More Terms” sidebar for additional information). Also part of right-sizing is implementing variable-speed drives on all motorized equipment, such as fans, pumps, and compressors, and improving UPS efficiency by better matching the facility’s infrastructure capacity to the IT load, says Hogan.

“Data center managers need to evaluate these options against the expected life of their existing data centers, since these alternatives require more investment to implement and time to pay back,” he adds.

More Terms

- Server compaction involves reducing or “compacting” the number of servers and therefore reducing power consumption.
- Close-coupled cooling is a strategy in which cooled air is brought closer to the compute load, particularly equipment racks, in order to deliver more efficient cooling and better exhaust air capture.
- Air-side economizers introduce outside air into the data center whenever conditions such as temperature and humidity are favorable. For example, centers in colder climates might use these during the winter to take advantage of natural cooling from outside.

Key Points

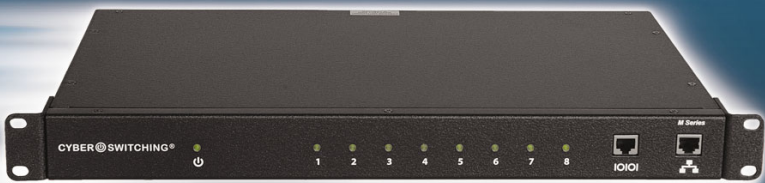
- Energy conservation and energy efficiency refer to two different, but related, strategies for power consumption.
- PUE and DCiE can be helpful benchmarks when determining whether power and cooling tactics are working.
- Right-sizing power and cooling can achieve sizeable savings in annual energy costs and involves a number of different techniques.

difference between that term and actual conservation, notes Nathan Rothman, president and CEO at Optimum Energy (www.optimumenergyhvac.com).

According to Rothman, conservation is the practice of decreasing the quantity of energy used. “In a data center, one example of this would be the practice of raising the temperature in the data center so less cooling would be required,” he says. “In a data center, as temperatures rise, so does the risk of failures due to overheating of equipment.”

Energy efficiency, meanwhile, is using less energy to provide the same level of energy service. A comparable example in the data center, Rothman says, would be

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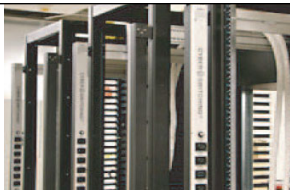
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# PDU's Direct To You

Top Quality At The Lowest Price Available

by Blaine Flamig

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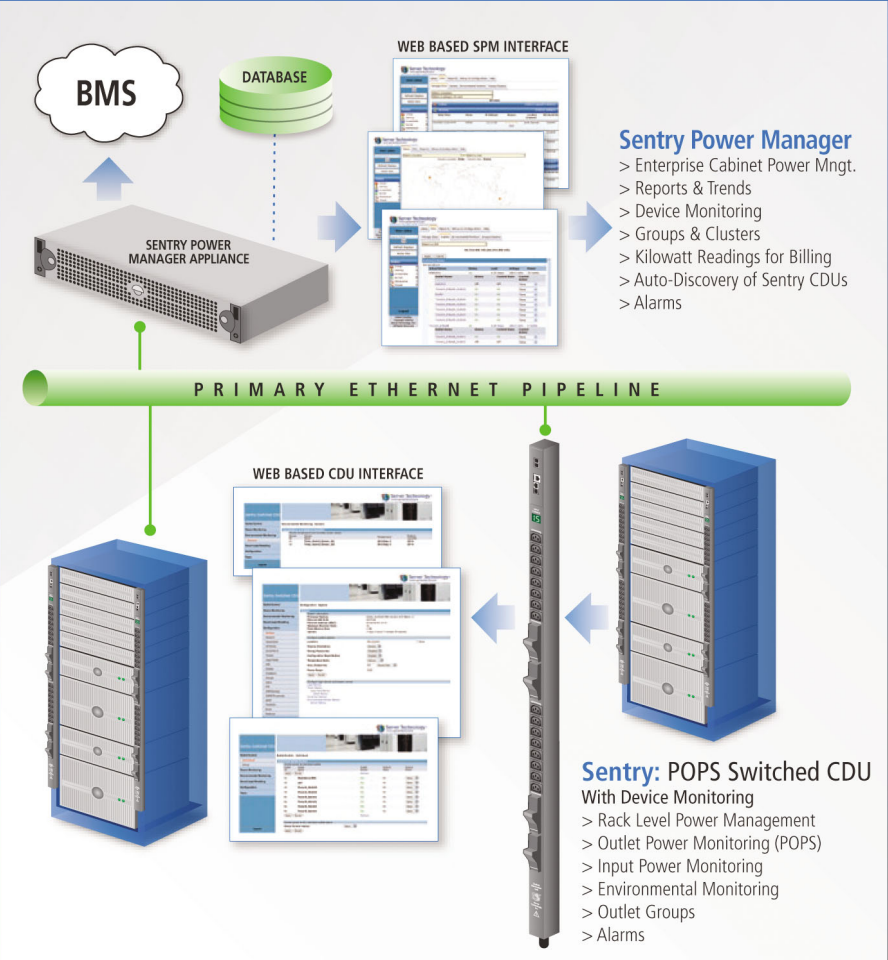
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## Study Uncovers PCI DSS Vulnerabilities

The 2009 PCI DSS Compliance Study conducted by the Ponemon Institute and Imperva reveals that enterprise security standards are not necessarily improving companies' security postures. Most notably, 71% of companies do not treat PCI DSS (Payment Card Industry Data Security Standard) compliance as a strategic initiative across the whole enterprise, but 79% of respondents indicate that they've been the victim of a data breach and suffered the loss or theft of credit card data.

The contrast of these statistics is surprising, considering that 75% of respondents say that their companies have attained a level of PCI security compliance. Brian Contos, chief security strategist for Imperva, says the "most surprising result was that while about three quarters of the respondents had reported having a data breach of some type, roughly the same amount didn't feel that data security was important."



He adds, "Further analysis of this point revealed that when an executive was involved in the PCI compliance and/or security strategy, the organization did in fact take it seriously enough to have a more robust security posture and meet PCI audit requirements."

### SMEs Aim For the Minimum

Small to medium-sized enterprises are struggling to comply with PCI standards, the study shows, with only 28% of companies with between 501 and 1,000 employees submitting to PCI standards, while 70% of large enterprises (with 75,000 or more employees) are compliant. Explaining that SMEs tend to lean toward moderate compliance, Contos says, "it appears that small to medium-sized businesses are less likely to secure sensitive data. When they address PCI compliance, they often do the bare minimum, which means that their security posture is quite flawed."

For example, Contos says, a small to mid-sized enterprise "may secure credit card information because they have to, but they won't secure other sensitive data unless it is spelled out." Overall numbers show that 27% of companies believe that PCI DSS contributes to their organization's security and ability to prevent data breaches.

Contos says, "On average, organizations tend to get the resources needed to address PCI; it is just a question of [whether they are] using it for check-the-box compliance for a minimal solution or leveraging it for broader data protection and business improvement. The latter is far more common with larger organizations."

To be more strategic regarding PCI DSS compliance, Imperva recommends enterprises cultivate more effective security by ensuring that senior management is backing PCI and assigning teams to drive and monitor compliance.

by Joanna Safford

PHYSICAL INFRASTRUCTURE

COVER FOCUS

# Power & Cooling Shopping Checklist

Take The Mystery Out Of Shopping For These Important Infrastructure Components

by Sixto Ortiz Jr.

IT PROBABLY GOES without saying that power and cooling are essential to data center operations: Without power, equipment won't run, and without cooling, equipment will run for a very short time before burning itself into useless cinders. Making the right choices in these two critical infrastructure elements will deliver a data center that runs smoothly and trouble-free. Here's a look at the ins and outs of buying power and cooling equipment and the knowledge that's required to make the right decision.

### Things To Keep In Mind

One of the most important things admins should understand when buying power and cooling equipment is that equipment density will continue to grow over time, says Kris Domich, principal consultant for data center solutions at Dimension Data ([www.dimensiondata.com](http://www.dimensiondata.com)). This means that power and heat loads will become more localized to equipment racks, so some racks may be significantly hotter than others. Thus, managers must understand their thermal loads in order to be successful.

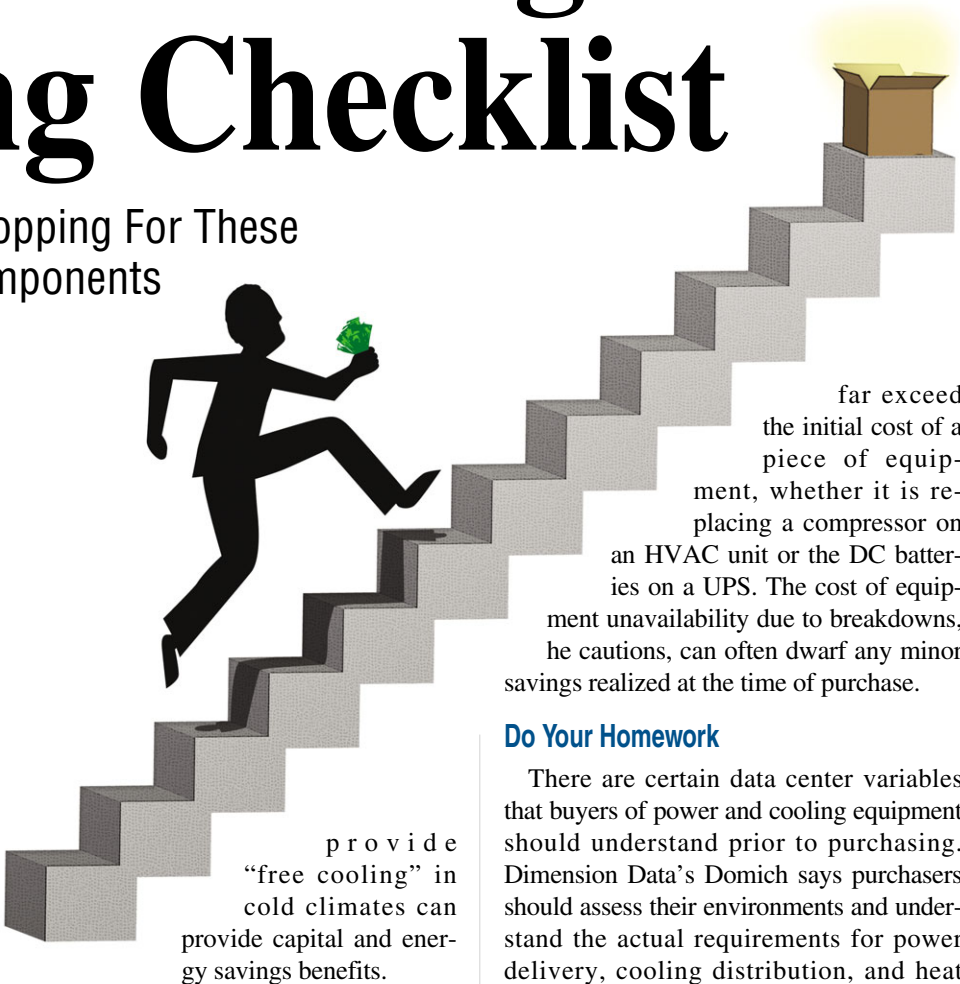
Deepak Jain, founder and president of AiNET ([www.ai.net](http://www.ai.net)), says administrators

### Key Points

- Understanding both present and future data center capacity needs is essential to making the right power and cooling purchasing decisions.
- Going cheap and failing to consult technical experts can result in costly purchasing mistakes.
- Above all, administrators should do their homework and have a clear understanding of their environments and any potential problems that need to be addressed.

must consider the total cost of ownership when purchasing power and cooling equipment, especially in an environment where energy and maintenance costs are going up. Purchasers should consider the efficiency of equipment at 25%, 50%, and 75% load (part-loading), Jain says. This is because, in general, power and cooling systems only run at 100% for a few hours per year, so it's important to consider how the equipment operates the rest of the time.

Understanding capacity is a critical component of successful power and cooling equipment purchases, says Jeff Lowenberg, vice president of facilities for The Planet ([www.theplanet.com](http://www.theplanet.com)). Lowenberg recommends that administrators purchase new equipment that can not only power and cool operations today, but also into the foreseeable future. In addition, he adds, admins should purchase equipment designed for the prevailing climate. For example, equipment that features heat rejection capacity for temperatures over 100 degrees is critical in hot climates, while products that can



far exceed the initial cost of a piece of equipment, whether it is replacing a compressor on an HVAC unit or the DC batteries on a UPS. The cost of equipment unavailability due to breakdowns, he cautions, can often dwarf any minor savings realized at the time of purchase.

### Do Your Homework

There are certain data center variables that buyers of power and cooling equipment should understand prior to purchasing. Dimension Data's Domich says purchasers should assess their environments and understand the actual requirements for power delivery, cooling distribution, and heat removal. These two considerations, he says, can have a profound impact on the strategy selected to cool and/or power a data center.

NITConnect's Ross says buyers should perform a data center audit to determine needs and identify any problem areas, such as under-floor and overhead obstructions that can cause airflow issues. DLT's Strosser recommends that buyers focus on the area of the data center that is of the highest concern and plan to purchase power and cooling equipment based on the needs for that area. Working with manufacturers, he adds, is recommended to determine best practices in dealing with power and cooling requirements for various technologies.

Purchasing data center cooling and/or power equipment will almost certainly mean using consultants and/or vendors to help with equipment selection, purchase, configuration, and installation. AiNET's Jain recommends that administrators choose vendors and consultants well. This means checking references and ensuring they have the experience and scope needed for the job. In addition, says Jain, vendors and consultants should provide service-level guarantees in writing that include response times and financial penalties for non-performance.

### Steps To Success

Carl Hillier, director of strategic marketing at Fujitsu America ([www.fujitsu.com](http://www.fujitsu.com)), recommends that prior to purchasing power and cooling equipment, administrators should first do what they can to minimize the amounts of power and cooling needed. According to Hillier, this can be achieved by:

- Choosing the right hardware, such as servers with lower power consumption and efficient heat dissipation.
- Using consolidation and virtualization to reduce server populations and thus the demand for power and cooling.
- Managing data center airflow by using techniques such as hot/cold aisles, thus maximizing the efficiency of the deployed cooling infrastructure.

### Pitfalls To Avoid

Power and cooling infrastructure can represent a significant outlay of capital, making missteps very costly indeed. A main pitfall is buying power and cooling for the data center as a whole, says Brian Strosser, vice president of enterprise data management for DLT Solutions ([www.dlt.com](http://www.dlt.com)). Strosser recommends that administrators think of the data center modularly and focus on the data center rack, rather than trying to cool the entire data center. Also, he warns, administrators must never assume that energy needs are going to be constant and should avoid growing the data center infrastructure without thinking about power and cooling up front.

Melissa Ross, CTO at NITConnect ([www.nitconnect.net](http://www.nitconnect.net)), recommends that purchasers avoid undersizing and/or oversizing power and cooling equipment. Undersizing equipment, she warns, can cause an operation to run the risk of outages, downtime, and equipment damage or failure. Oversizing, on the other hand, can lead to higher expenditures of energy and money. Administrators must find a middle ground that meets operational needs without losing sight of increased demands as power and cooling needs increase in the future.

Another common pitfall is failing to understand what the infrastructure needs to do for the enterprise, says Julian Kudritzki, vice president of development and operations at the Uptime Institute Professional Services ([professionalservices.uptimeinstitute.com](http://professionalservices.uptimeinstitute.com)). For example, he says, purchasers should make sure that the configuration of the equipment, regardless of manufacturer or technology, allows for replacement and repair without affecting the delivery of power and cooling to the critical load.

All equipment is not created equal. And, says Arthur Valhuerdi, vice president of engineering for Zayo Colocation Services ([www.zayo.com](http://www.zayo.com)), two pieces of equipment can have the same specifications yet have vastly different costs. Buyers should be especially wary of purchasing less expensive equipment without learning about its reliability, warns Valhuerdi. The TCO can



COVER FOCUS

# Dealing With Power & Cooling Challenges

Leaving Infrastructure Issues Unchecked Can Cripple Your Data Center

by Sandra Kay Miller

WHETHER IT’S AFCOM polling its membership or Gartner addressing the issue at its IT Infrastructure, Operations, and Management Summit, it’s clear that many of the most top-of-mind problems within the data center involve power and cooling.

Recent polls conducted by both organizations reveal that more than 90% of all respondents do not feel they have adequate power and cooling within their data centers, and 29% list power and cooling as their biggest challenge within their data centers.

In his Summit presentation, Gartner Research Vice President Michael Bell referred to power and cooling problems as a “pandemic” within data centers as high-density servers such as blades are driving up the heat density and watts per square foot to record levels.

Additionally, of the 81.5% of AFCOM survey respondents who reported data center outages in the past five years, 82.5% were directly related to power.

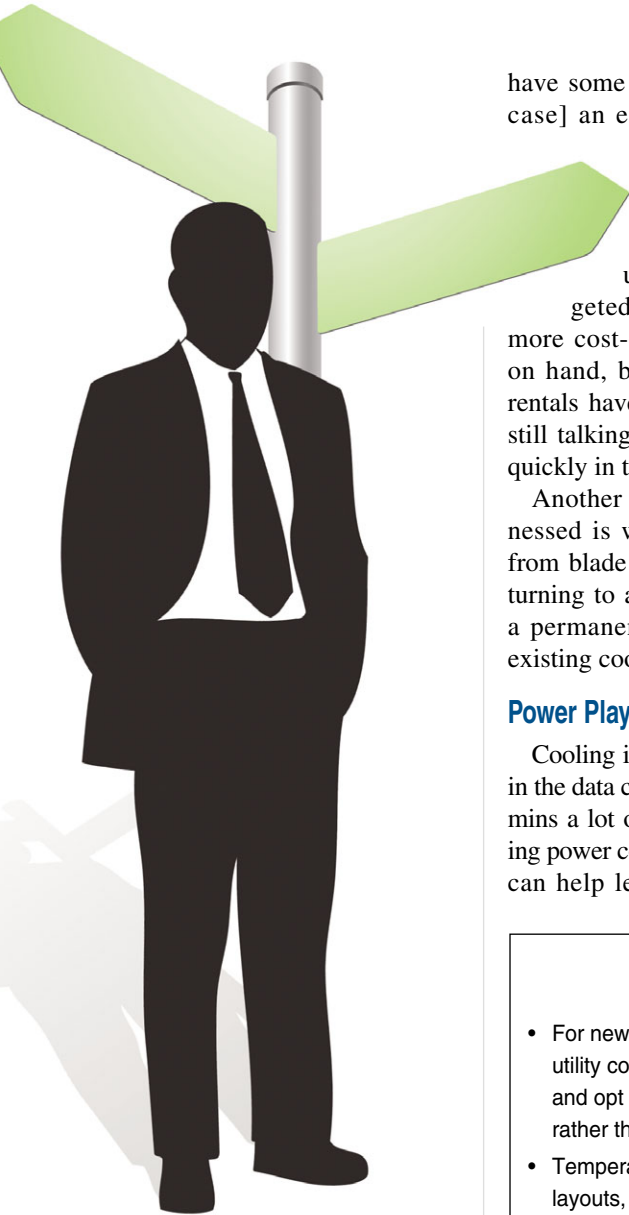
But all is not doom and gloom. There are many options for mitigating challenges—both large and small—when it comes to keeping a data center functioning smoothly.

## Start Off On The Right Foot

In an ideal world, problems would be headed off before they have a chance to become problems. That’s exactly what companies are doing today when planning their data centers. Although metropolitan locations were once considered prime real estate, organizations now are choosing sites based on proximity to power stations, lower utility rates, and even cooler geographic areas to take advantage of passive ambient cooling technologies.

According to Bell, the type of building for housing the data center can also significantly impact power and cooling. He suggests a single-story building with an open floor plan and high ceilings as opposed to high-rise office-type structures.

For organizations where building a new facility isn’t in the cards, there are still plenty of simple measures that can reduce power and cooling issues in existing infrastructures. For example, Kenneth Smith, presi-



dent and CEO of CoreNap ([www.corenap.com](http://www.corenap.com)), painted the roof of his 15,000-square-foot colocation facility in Austin, Texas, white to help reflect the intense sunlight of the region. The white paint has helped CoreNap decrease its cooling costs.

## Keep Your Cool

In addition to his facility’s recent paint job, Smith also utilizes other common best practices for reducing cooling costs such as hot and cold aisles and venting racks directly into chilled air areas.

Common cooling problems can also be addressed through technology. CoreNap has recently deployed a temperature-sensing grid that will have sensors every 2 feet across the data center, and the information gathered by the monitors will be used for tracking and modeling the data center’s heat flow. “We expect that to provide a 10 to 20% reduction on electrical usage for our heating and cooling infrastructure by being able to better and more accurately have the computer room HVAC system work as a team,” explains Smith.

Additionally, Gartner foresees an increased use—as much as 15% by 2011—of in-server and in-rack cooling technologies for high-density equipment.

## Have A Backup Plan

Even with careful planning, pre-emptive technology, and close monitoring, Eddie Stevenson, marketing manager for Movin-Cool ([www.movincool.com](http://www.movincool.com)), recommends having a backup plan ready. “You should

have some sort of emergency cooling [in case] an existing backup system shuts down, equipment is in need of maintenance, or people are switching things around.”

Portable air conditioning units can provide instant, targeted cooling. Stevenson says it’s more cost-efficient to have mobile units on hand, but they can be rented. “Most rentals have same-day service, but you’re still talking hours, and things can heat up quickly in the data center,” he says.

Another trend that Stevenson has witnessed is with the increasing heat loads from blade servers, many data centers are turning to additional spot-cooling units as a permanent solution to supplement the existing cooling infrastructure.

## Power Plays

Cooling isn’t the only infrastructure issue in the data center—power troubles cause admins a lot of grief, too. However, monitoring power consumption and analyzing trends can help lessen the considerable energy

### Key Points

- For new facilities, aim for areas with low utility costs or proximity to power stations and opt for a one-story open floor plan rather than a high-rise.
- Temperature monitors, hot/cold aisle layouts, and spot-cooling units can keep cooling concerns in check.
- Tracking power consumption at the rack level can give you a more detailed view of where your power is going.

woes that come with today’s high-tech servers and other equipment. “The power per server utilization has gone significantly higher in recent years,” Smith says. “Power consumption has increased as server density has grown. [At CoreNap,] we’re pulling a continuous megawatt of power 24/7.”

Traditionally, power consumption in the data center has been treated as a commodity, but in order to remain profitable in today’s tight economic climate, more organizations consider their power to be a resource and thus are keeping much closer tabs.

For example, Calvin Nicholson, director of marketing at Server Technology (800/835-1515; [www.servertech.com](http://www.servertech.com)), points out that his company has started taking monitoring power down to the rack level. “[This way,] you can actually get detailed information about all the different cabinets within your data center,” Nicholson says.

Server manufacturers also are getting wise to power monitoring at the rack level and starting to integrate it directly into the hardware instead of forcing data center managers to rely on third-party vendors.

Other manufacturers are now implementing power caps on servers. This means that once a threshold has been set, the hardware won’t consume more power than its limit allows, ultimately offering much better control for overall power consumption.

## Study: Nearly One-Fifth Of Internet Users On Twitter

A study released by the Pew Internet & American Life Project revealed that close to one-fifth of Internet users are tweeting their personal or business-related updates on Twitter or using another status update service to share information. The study took place in September and found that of the 2,200 people surveyed, 19% are using status update services, which marks an 8% increase since April. According to Pew’s study, users who regularly access social networking sites to post information, mobile device users, and those who are between the ages of 18 and 44 are the three types of Internet users attributed to Twitter’s recent surge.

## Microsoft Posts Revenue Drop

Microsoft’s revenue and income both took a hit during the most recent quarter. The company posted revenues of \$12.92 billion, a 14% drop from a year ago. Its net income of \$3.57 billion was down 18% year-over-year. Microsoft says the quarterly results include a deferral of \$1.47 billion in revenue related to the Windows 7 Upgrade Option and sales of the new operating system to OEMs and retailers before it became generally available Oct. 22. During the quarter, Microsoft also released Windows Server 2008 R2 and released Exchange Server 2010 to manufacturing.

## 2009 Semiconductor Market Turnaround Not Likely

According to research firm Gartner, the Dataquest Semiconductor Inventory Index fell from 1.54 in Q4 2008 to 1.31 in Q1 2009, indicating that progress has been made regarding eliminating excess inventory. However, Gartner doesn’t believe true stabilization and subsequent growth in the semiconductor market will occur until 2010. And although sales are still low, Gartner expects those numbers to rise in 2010 and continue into 2011.

## BlackBerry, iPhone Differ In Security Risks

According to Sheren Gunasekera, head of research and development for ZenConsult, the iPhone and BlackBerry are rated at varying vulnerability levels, citing a 39-point vulnerability total for the iPhone as opposed to a two-point accumulation for the BlackBerry. BlackBerry smartphones are still susceptible to spyware via downloads or microSD cards, although Gunasekera asserts that it’s impossible to hack a BlackBerry. Both BlackBerry smartphones and iPhones are susceptible to social engineering attacks, such as free applications and multimedia. Gunasekera advises that BlackBerry and iPhone users be aware of software installations, avoid giving the device to other users, and enable passwords.



## Hitachi To Buy Part Of Nortel

Nortel has agreed to sell some of its next-generation packet core network components to Hitachi for \$10 million. The deal includes software that supports the transfer of data over existing wireless networks and the next generation of wireless technology. Legacy packet core components for Nortel’s UMTS and GSM businesses are not included in the sale. The deal is expected to close before the end of the year, but it is subject to approval by a Delaware bankruptcy court and the Ontario Superior Court of Justice. The Hitachi deal is the fourth major sale of a piece of Nortel since Nortel entered bankruptcy protection in January.

## Quick Fixes For Power & Cooling Challenges

- Fix air leaks in raised floors and use blanking panels in racks.
- Mix high-density and low-density equipment to balance temperature.
- For heat-generating high-density zones, consider new technologies such as liquid cooling.
- Consolidate and virtualize servers to save on power.
- Create a metric and use it to monitor power on a granular level, such as by rack.



THREE QUESTIONS

# Fight The Heat Wave

Future Facilities Helps Take The Heat Out Of Data Centers

by Daniel P. Dern

HEAT IS ONE of IT's many perpetual enemies, and Future Facilities is one company aimed at helping data centers beat the heat. Founded in 2004, Future Facilities ([www.futurefacilities.com](http://www.futurefacilities.com)) helps companies involved in planning, building, and using mission-critical IT facilities with anticipating, indentifying, and solving problems related to heat build-up, using its 6SigmaDC product suite. 6SigmaDC is geared toward data center designers, IT and facility managers, field engineers, and others who have an interest in designing or maintaining a data center. "We sell to a range of companies relating to the data center market," says Hassan Moezzi, managing director and CEO of Future Facilities. "We also sell to infrastructure suppliers like Emerson and Liebert, to cabinet vendors like Wright Line, to data center operators, and to major consulting firms."

■ What are the biggest IT-related issues facing today's small to midsize enterprise?

"The power density in traditionally built data centers is causing major problems in terms of reliability," says Moezzi. "Although the cost and space for cooling and limits to the maximum amount of cooling available are concerns, the biggest concern is hot spots—areas where heat is building up rather than being dissipated." If not dissipated in a timely fashion, Moezzi explains, heat build-up can cause computational errors, shorten component lifetimes, cause system failures, or, at best, trigger automatic shut-downs to avoid damage, which still can impact availability. Managing the airflow and cooling is becoming a far greater problem, says Moezzi. "You may have enough cooling but not enough airflow—because of the localized nature of the power, you do get hot spots if you can't get the cooling where

you need it to go." Dealing with heat in today's environments is "more like a problem in electronics cooling than ventilation or room cooling," says Moezzi. ■ What should *Processor* readers know about your company's products? "Today, people tend to build and hard-wire data centers without testing in advance [the] physical implementation," says Moezzi. "This causes hot spots. The only way you can really manage a data center efficiently in terms of heat analysis is to simulate it. . . . Our modular 6SigmaDC—for Data Center—software lets you build a virtual facility (VF) representation." The

management planning tasks, according to Moezzi, including designing and testing a new data center, predicting the impact of changes to the live facility, selecting cabinet housing and distributing loads within cabinets, and assessing a facility's PUE (power usage effectiveness) and overall energy efficiency. "We mainly deal with real data centers with heterogeneous environments," notes Moezzi. "The churn of equipment creates big problems as inventory moves and refreshes—e.g. in investment banking, where you're moving hundreds of kilowatts of power in and out of the room in weeks or even days. Our simulations help companies



VF is a mathematical representation that mirrors a real facility at any point in time, from the room level to the server level as well as any changes over time (adding, changing, and removing). "Using CFD (computational fluid dynamics) calculations, 6SigmaDC simulates heat/cooling behaviors for modeling thermal management," says Moezzi. "We simulate the full CFD calculations taking the physical data center into account, down to individual kits [and] chassis." Future Facilities' 6SigmaDC software can also be used for a variety of thermal

understand the impacts of these moves and prevent disasters." ■ What makes your company unique? "We are the only CFD-based company focused solely on data centers," says Moezzi. The company is also working on bridging the planning gap between IT and facilities. "We are trying to create a language to let characteristics of equipment be translated to the building services side, so you can get a holistic view," Moezzi says. "You can't do this just by looking at IT equipment or cooling or cabinets alone." P

OPINIONS

FROST & SULLIVAN

# Power Obstacles For Data Center Operators



**AUTHOR:** Farah Saeed is a senior consultant with the Frost & Sullivan North American Energy and Power Systems group, with a focus on expanding Frost & Sullivan's content and knowledge base on Smart Grid technology. During her 10-year tenure with Frost & Sullivan, Saeed has been the project manager and lead analyst on power supply-related custom and syndicated assignments. She has also conducted in-depth research on technology and market trends that impact the power industry. Send your comments to [frostandsullivan@processor.com](mailto:frostandsullivan@processor.com)

■ Power equipment, including UPSes and switchgear, typically has a repurchase cycle of at least seven years. In some instances, applications such as oil rigs and manufacturing floors push the repurchase cycle for rugged UPS systems up to 10 to 15 years. Until recently, electrical infrastructure was put on the back burner by many facility and data center operators, and, in many instances, power management and capacity evaluation were often neglected. Rising energy costs and concerns over environmental issues have changed that. The United States grid is only 99.9% reliable, translating to nine hours of power interruption during a year. For a data center operator, there is a lot at stake with an unavailable data center that has been affected by a power outage or power interruption. In fact, power

interruptions are said to cost the United States economy about \$150 billion per year. A recent Frost & Sullivan end-user survey of 400 data center operators showed that the majority of data centers experience between one and five power outages per year. ■ Unavailable Power Addressing unavailable power is not the only power issue for data center operators. Energy consumption and inefficiencies are also a concern. At the present time, energy consumption is estimated at 61 billion kWh for data centers, which equals about 1.5% of the energy demand in the United States. U.S. data centers spend about \$3.3 billion on power per year. However, priorities to address these issues vary according to the size of the data

center. For instance, energy optimization is not considered a priority for small data centers with fewer than 100 racks. Frost & Sullivan's survey shows that only one-third of respondents have energy optimization policies in place. And for the majority that do not have these policies, only 32% plan to implement an energy efficiency policy. On the other hand, the majority of large data centers with more than 1,000 racks have some form of energy optimization policy in place. For those that do not have this in place, half plan to implement policies.

Energy Efficiency Improvements

To address these issues, IT OEMs and power companies are actively developing and designing hardware and software products that claim significant energy efficiency improvements. In terms of backup power systems, Eaton offers the BladeUPS that, in addition to a small form factor, also operates at 97% efficiency. This product comes with a PDU that features intelligent information technology functionality and advanced in-rack power distribution capabilities. Similarly, Liebert offers NX UPS with a 97% efficiency level. Other power product designs include APC's InfraStruXure, which consists of modular, pre-engineered building blocks that integrate rack, cooling, and power management in one solution. Active Power, a well-known manufacturer of flywheel systems, is offering power and cooling in a container. Active Power offers a preconfigured, fully contained system but with power and cooling technology. The system contains a UPS, switchgear, standby generator, and chiller system. Unlike traditional UPS systems, this solution incorpo-

rates a flywheel UPS system designed to bridge to the standby generator (between 15 and 30 seconds) and protect against short-term power fluctuations. Traditional UPS systems use lead acid batteries. Flywheels are considered a robust solution because of their immunity to wide ambient temperatures (a flywheel system is less likely to degrade compared to lead acid batteries). The product also offers higher efficiency at 40% load compared to batteries: 98% vs. 81%. A disadvantage is its runtime compared to lead acid battery-based UPS systems, which are designed to provide a minimum of five minutes. ■ Take Charge The importance of power management has led to an increasing number of IT managers taking charge of managing cooling and power solutions. Historically, facility managers took charge of power issues. A recent Frost & Sullivan end-user survey reveals that 32% of the respondents who are responsible for making purchases in data centers are in fact IT managers. The decision is no longer solely made by facility managers. Frost & Sullivan estimates the power market in North America to be in excess of \$8 billion (excluding batteries). The power market consists of generators, UPSes, switchgear, PDUs, and capacity managers. Addressing power issues in data centers is expected to remain on the radar for data center operators, because power consumption in data centers is expected to accelerate in the years to come with anticipated server consolidation, increases in server volume, increases in server memory, and denser servers. P



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# VPN & Remote Connectivity

Product	ANX OfficeScreen Complete	ANX PositivePRO	Aruba Networks 600 Branch Office Controller Series	Aruba Networks RAP-2WG Remote Access Point
				
Description	<p>This cloud-based, fully managed SaaS solution provides VPN functionality for secure site-to-site access. Enterprises with far-flung employees and/or partners with network access requirements can benefit from OfficeScreen Complete's continually updated protection.</p> <ul style="list-style-type: none"><li>Provides security for access points</li><li>Includes a firewall</li><li>Offers failover support</li><li>Can perform traffic shaping</li><li>Helps with compliance to PCI-DSS, Sarbanes-Oxley, GLBA, and HIPAA</li></ul> <p><b>Best For:</b> Organizations with remote user security and regulatory compliance needs.</p> <p><b>Price:</b> Starts at \$78 per month</p>	<p>Hosted in a carrier-class data center, ANX's PositivePRO is a SaaS program that gives geographically dispersed users a safe means of accessing the corporate network. Easy to use, the service supports group-based policy management of access rights for various clusters of users.</p> <ul style="list-style-type: none"><li>Constantly monitored</li><li>Performs endpoint security assessments and dynamic authentication in real time</li><li>Support personnel are available via live chat</li></ul> <p><b>Best For:</b> Enterprises focused on compliance and internal and external access security.</p> <p><b>Price:</b> Starts at \$199 per month (10 users)</p>	<p>This all-in-one hardware solution series isn't just about providing site-to-site VPN connectivity in an edge device. The 600 Series is simple to install and comes at a modest price, making it ideal for home office and telecommuter use as well as for service in clinics and branch offices.</p> <ul style="list-style-type: none"><li>Supports Wi-Fi (with a dual-band 802.11n AP in the 651 model)</li><li>Includes file and print servers</li><li>Supports Power over Ethernet+ and 1Gbps LAN</li><li>Comes with a built-in firewall</li></ul> <p><b>Best For:</b> Branch offices with multiple users.</p> <p><b>Price:</b> \$1,495</p>	<p>Compact and inexpensive, this 802.11b/g access point supports secure VPN access to the corporate network. It can support enough users to make it more than adequate for home office, telecommuting, clinic, and kiosk scenarios.</p> <ul style="list-style-type: none"><li>Dual LAN ports</li><li>Suitable for concurrent use with VoIP phones and other devices</li><li>Budget priced</li><li>Small footprint</li></ul> <p><b>Best For:</b> One- to five-user sites, kiosks, SOHO users, and telecommuters.</p> <p><b>Price:</b> \$99</p>
Contact	(877) 488-8269 www.anx.com	(877) 488-8269 www.anx.com	(408) 227-4500 www.arubanetworks.com	(408) 227-4500 www.arubanetworks.com

Product	D-Link DFL-2560G NetDefend UTM Firewall	Juniper Networks SA 2500 SSL VPN Appliance	SafeNet HighAssurance 4000 (v5) Gateway	SonicWALL Aventail E-Class EX-750
				
Description	<p>Similar in most respects to the D-Link DFL-2560 (albeit not in price), this variant differs most noticeably in its LAN port configuration. Its SFP ports can be used with fiber connections for flexibility.</p> <ul style="list-style-type: none"><li>Six Gigabit jacks</li><li>Four small form-factor pluggable uplink ports</li></ul> <p><b>Best For:</b> Applications with fiber uplink requirements in medium-sized to large enterprises.</p> <p><b>Price:</b> \$11,399</p>	<p>Juniper's SA 2500 SSL VPN Appliance can support up to 100 concurrent users and features dual Gigabit ports. The SA line is extremely scalable (also shown are the SA 4500 and SA 6500).</p> <ul style="list-style-type: none"><li>Audited by iSEC Partners and Cybertrust</li><li>Suitable for mobile devices, terminal services, Web app availability, and client/server connections</li><li>Provisioning by purpose support: SAM, NC, and clientless core Web access</li></ul> <p><b>Best For:</b> Any company or service provider with complex and demanding security requirements.</p> <p><b>Price:</b> Starts at \$4,995 (10 concurrent users)</p>	<p>Dubbed HA4000 (v5) for short, this gateway appliance handles most VPN needs. It lets organizations safely and securely take advantage of the lower costs of communication over the Web.</p> <ul style="list-style-type: none"><li>Ready to protect remote and site-to-site access</li><li>Comes with SafeNet's Security Management Center SNMP monitoring and administration software</li></ul> <p><b>Best For:</b> Government agencies, financial institutions, and cloud computing and managed service providers.</p>	<p>This VPN eschews IPsec in favor of SSL. It's designed to be simpler to use, less expensive to operate, and less likely to generate calls to tech support. The secure remote access device gives even small offices enterprise-class security.</p> <ul style="list-style-type: none"><li>Endpoint control interrogation at configurable intervals and/or login</li><li>Access control by user, group, IP addresses or range, and much more</li><li>Clientless system</li><li>Can handle mobile connections and other endpoint device platforms</li></ul> <p><b>Best For:</b> Enterprise departments, remote offices, and SMEs with up to 50 concurrent users.</p> <p><b>Price:</b> Starts at \$2,995 (10 users)</p>
Contact	(714) 885-6000 www.dlink.com	(888) 586-4737 www.juniper.net	(800) 533-3958 www.safenet-inc.com	(888) 557-6642 www.sonicwall.com







PRODUCT SPOTLIGHT

NETWORKING & VPN

Processor’s Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Marty Sems

<div>Aruba Networks RAP-5 Remote Access Point</div> <div></div> <div><p>The RAP-5 family comes with enhanced capabilities compared to the RAP-2WG. These Virtual Branch Network products are simple to install, Aruba says, and can satisfy even advanced remote users.</p><ul style="list-style-type: none"><li>• Hardware-accelerated encryption comes standard</li><li>• Supports 3G cellular modems via USB</li><li>• Five Ethernet ports</li><li>• Optional 802.11n support</li></ul><p><b>Best For:</b> SOHOs and branch offices with multiple users.</p><p><b>Price:</b> \$395</p></div> <div><p>(408) 227-4500 www.arubanetworks.com</p></div>	<div>Black Box FireTunnel 30</div> <div></div> <div><p>FireTunnel 30 from Black Box is a complete stateful inspection firewall that offers enterprise-class features for less than \$350. Because it’s virtually plug-and-play, it’s an ideal solution for organizations without a dedicated IT staff.</p><ul style="list-style-type: none"><li>• Full stateful inspection firewall</li><li>• Supports up to 30 VPN tunnels for secure remote data access</li><li>• Can act as a VPN concentrator, enabling multiple remote users to securely connect to each other through a FireTunnel in the home office</li><li>• Load balancing across two WAN connections—a feature usually seen only on expensive, enterprise-class firewalls</li><li>• Incorporates an 8-port switch and router to make it a true all-in-one Internet appliance</li></ul><p><b>Best For:</b> Small to medium-sized organizations with high security requirements and tight budgets.</p><p><b>Price:</b> \$325.95</p></div> <div><p>(724) 746-5500 www.blackbox.com/go/VPN</p></div>	<div>D-Link DFL-1660 NetDefend UTM Internet Security Appliance</div> <div></div> <div><p>D-Link’s unified threat management products combine VPN support with Kaspersky antimalware, intrusion prevention, and more. The DFL-1660 in particular provides up to 350Mbps of VPN access speed with hardware-based 3DES or AES encryption and can handle up to 2,500 IPsec tunnels.</p><ul style="list-style-type: none"><li>• Web content filtering</li><li>• Dual-core processing</li><li>• 1U rackmount form factor</li><li>• Six configurable Gigabit Ethernet ports</li></ul><p><b>Best For:</b> Small to medium-sized enterprises.</p><p><b>Price:</b> \$4,999</p></div> <div><p>(714) 885-6000 www.dlink.com</p></div>	<div>D-Link DFL-2560 NetDefend UTM Firewall</div> <div></div> <div><p>Compared to the DFL-1660, the DFL-2560 is a faster VPN device with the ability to handle more IPsec tunnels, and it has more Gigabit ports. This NetDefend can ferry up to 2Gbps of firewalled traffic, too, in contrast with its little brother’s 1.2Gbps capabilities.</p><ul style="list-style-type: none"><li>• 1Gbps VPN throughput with 3DES or AES encryption</li><li>• Supports up to 5,000 IPsec VPN tunnels</li><li>• 10 Gigabit ports</li><li>• Fits in a 1U rack space</li></ul><p><b>Best For:</b> Medium-sized to large enterprises.</p><p><b>Price:</b> \$8,599</p></div> <div><p>(714) 885-6000 www.dlink.com</p></div>
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<div>SonicWALL Aventail E-Class EX-6000</div> <div></div> <div><p>Building on the capabilities of the Aventail EX-750, the EX-6000 steps up to the plate with the ability to handle up to 250 remote connections. Still, it provides the same ease of use and remote access security characteristics as its smaller sibling.</p><ul style="list-style-type: none"><li>• Flexible EPC interrogation settings</li><li>• WorkPlace Mobile feature to support phone browser access</li><li>• Multi-OS access to UDP and TCP applications</li></ul><p><b>Best For:</b> Medium-sized organizations with 25 to 250 simultaneous users.</p><p><b>Price:</b> Starts at \$3,995 (10 users)</p></div> <div><p>(888) 557-6642 www.sonicwall.com</p></div>	<div>SonicWALL Aventail E-Class EX-7000</div> <div></div> <div><p>In addition to its significantly higher connection capacity, the EX-7000 diverges from SonicWALL’s other Aventail E-Class SRAs, coming standard with features that are optional on the lesser systems.</p><ul style="list-style-type: none"><li>• Supports eight times as many connections as the EX-6000</li><li>• Built-in antimalware and firewall protection</li><li>• Supports Windows Mobile</li><li>• Provides native access modules for Windows Terminal Services and Citrix</li></ul><p><b>Best For:</b> Enterprises with 50 to 2,000 remote users.</p><p><b>Price:</b> Starts at \$19,245 (50 users)</p></div> <div><p>(888) 557-6642 www.sonicwall.com</p></div>	<div>StoneGate FW-310 Firewall/VPN</div> <div></div> <div><p>Network complexity is just as big a security problem as malware and hackers, says Pentti Lehtinen, Stone-soft’s technical director for the Americas. The more complex the system, the less likely it will be properly secured. To that end, StoneGate sells VPN and firewall devices such as the 250Mbps FW-310 that play multiple roles.</p><ul style="list-style-type: none"><li>• Offers load balancing</li><li>• Replaces backup connections</li><li>• Simplifies management of third-party devices</li><li>• Improves overall network connectivity and performance</li></ul><p><b>Best For:</b> Medium-sized to large enterprises.</p><p><b>Price:</b> \$2,600</p></div> <div><p>(866) 869-4075 www.stonesoft.com</p></div>	<div>StoneGate FW-5105 Firewall/VPN</div> <div></div> <div><p>Boasting a 25Gbps firewall and 5Gbps VPN throughput, the FW-5105 provides relatively fast, secure remote access. Its StoneGate Management Center offers single-console control of all parts of your organization’s network.</p><ul style="list-style-type: none"><li>• Multi-Link feature supports connections of multiple types</li><li>• Allows throughput enhancement</li><li>• Helps avert temporary outages, including those for maintenance</li><li>• Four 10Gbps fiber ports, 18 1Gbps ports</li></ul><p><b>Best For:</b> Medium-sized to large enterprises.</p><p><b>Price:</b> \$112,000</p></div> <div><p>(866) 869-4075 www.stonesoft.com</p></div>
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## Study Looks At Personal Information Security In The Enterprise

Large or small, enterprises have an interest in keeping their customers' data safe. PCI DSS (Payment Card Industry Data Security Standard) compliance is the hot topic these days at companies of all sizes. Although it's mainly viewed in terms of credit card security and consumer fraud prevention, PCI DSS is an important plank in an enterprise's security construct.

Application and database security company Imperva recently sponsored a survey of 517 IT workers from the United States and other nations. Each individual surveyed has some responsibility for PCI DSS compliance within his organization. The most cost-effective means to that end, according to respondents, are firewalls, anti-malware, encryption, and access controls.

### A Closer Look

The 2009 PCI DSS Compliance Survey, which was conducted by the Ponemon Institute on behalf of Imperva, found that 25% of enterprises don't comply with the security requirements at all. Another 55% enact PCI DSS only for credit card information, regardless of other sensitive customer data on their systems, such as Social Security numbers and bank account information.



Of the respondents, 71% said that their organizations did not consider PCI DSS to be a strategic initiative, and 60% cited insufficient resources as a reason for partial or non-compliance. With cost cited as the chief hurdle in the way of compliance—representing about a third of a typical IT budget—it has become clear that PCI DSS is more troublesome to smaller companies than to larger cash- and human resource-rich enterprises. Nearly four out of five (79%) of all companies polled had suffered a data breach.

However, PCI DSS compliance is but a catalyst for a larger security discussion. “Compliance will continue to evolve to have a greater focus on data security, i.e. databases and Web applications,” says Brian Contos, chief security strategist at Imperva. “This is what the bad guys are targeting.”

Contos goes on to say that merely going through the motions can not only waste an opportunity to re-evaluate IT security in an organization but can even be counterproductive. “Compliance is what you make of it,” he says. “Check-the-box compliance for the sake of passing an audit is worse than not passing as it gives a false sense of security.”

If PCI DSS compliance is to improve, leadership must come from above, the study concludes. “There is a need for [executive] involvement regardless of organization size because security and compliance are strategic,” Contos says.

by Marty Sems

# The True Cost Of Downtime

Costs Can Be Tricky To Determine But Are Always Worthwhile To Calculate

by Jean Thilmany

ALL DATA CENTER MANAGERS hear a lot of talk about uptime. But if you're going to address uptime, you have to talk about its less welcome relative: downtime.

Let's face it, virtually any data center downtime has some sort of financial cost to the enterprise, whether it's in actual revenue dollars lost, loss of productivity, or employee downtime. It's likely the financial cost comes from a combination of all three. And although it's easy enough to find general figures that are meant to give enterprises a ballpark figure for how much their downtime costs the enterprise, in reality those numbers can vary greatly depending on the type of enterprise. General numbers aren't good enough here.

### The Calculation

Making a cost-of-downtime calculation specific to your own particular enterprise is beneficial for several reasons, says Richard Whitehead, director of solution marketing at software maker Novell ([www.novell.com](http://www.novell.com)). By fixing downtime costs, IT managers can isolate problems within the data center that

accessing your server. A slowdown in Web applications might also mean employees or customers can't get to the tools they need to get their jobs done, Abate adds. Employees without access to email, even momentarily, will lose an important communications medium.

### Plugging In The Numbers

So how exactly does a data center or IT manager at a small to mid-sized enterprise go about calculating the costs of downtime for her particular enterprise?

The best method of calculating the cost of downtime is to compare a history of downtime for a particular period against loss in productivity or sales for that period, Murray says. But calculating loss in productivity and sales can be tricky, as so many variables—specific to each enterprise—go into the mix, he adds.

So cost calculations depend on the enterprise, he adds. Some enterprises can be accurate in calculating the cost of downtime, because they know all the variables.

Small enterprises without outside customers tapping into their servers may be in the best position here, Abate says.

“If any of the services you’re providing from your data center are critical to your business or your customer’s business, [downtime] eats into the effectiveness of your business.”

- Panopta's Jason Abate

need improvement, determine the reason for the downtime, and fix the problems.

Also, when companies know their cost of downtime, they can make good business decisions about the redundancy methods and levels they should have in place, says Dave Murray, CEO of Convergence Networks ([www.cnwi.net](http://www.cnwi.net)), an IT consultancy.

“Take, for example, a case where five minutes of downtime could cost a company \$100,000 in revenues,” Murray says. “That enterprise can easily justify and make a decision to have a high level of redundancy to eliminate downtime.”

But getting to that quantifiable number—that five minutes equals \$100,000—isn't always easy or even possible, says Jason Abate, CEO of Panopta ([www.panopta.com](http://www.panopta.com)), which offers server monitoring and outage management.

“If any of the services you're providing from your data center are critical to your business or your customer's business, [downtime] eats into the effectiveness of your business,” he says.

The business efficiency may take many not-easily-quantifiable forms, such as to increase the hassle and delay for users

They're better able to make hard-and-fast determinations such as, if the server goes down, 20 employees will lose access to email and other Web applications. Knowing those employees' hourly wages will allow managers to come up with downtime costs per hour.

Larger, more complex enterprises that do have outside customers relying on IT services the enterprise offers will have a more difficult time making this kind of calculation, Whitehead says. Who's to say how many customers might be lost when they're unable to complete an online sale?

“For some businesses downtime in the middle of the night is not a big deal and may not even be noticed,” Whitehead says.

### Key Points

- Enterprises will use different inputs to calculate the costs of data center downtime.
- Business productivity, efficiency, and revenue are all lost during downtime; putting hard numbers to the losses can be difficult.
- Even if they're not perfect, downtime calculations allow IT managers to make informed decisions about data center operations.

“For a company—even a small company—that does online business or global business, the impact could be significant.”

Enterprises need to consider the impact of productivity, revenue, labor, and, in some cases, opportunity when assessing downtime costs, Whitehead says. “For example, if you're running a promotion that happens at a specific time and your system is down or unable to accommodate all the users, you'll see a business impact,” he says. Each cost to downtime will need to be considered, because no single factor gives you the total picture, he adds.


Also hard to quantify are the cost of very short outages, as these costs might add up over time, Abate says. For instance, an important email may be delayed, resulting in a lost sale.

### Decision-Making Aid

With the cost of downtime in hand (even if the cost estimate is a rough one), IT managers will have the necessary information to make certain decisions, Abate says.

“Even if the numbers have some limitations, they can still help you decide what it is you want to do about the downtime,” he says. “It may be you decide it's an acceptable cost, or you maybe decide to fix some things. The numbers sort of lay out what the impact of your downtime is and give you a way to consider your options as you decide what to address.”

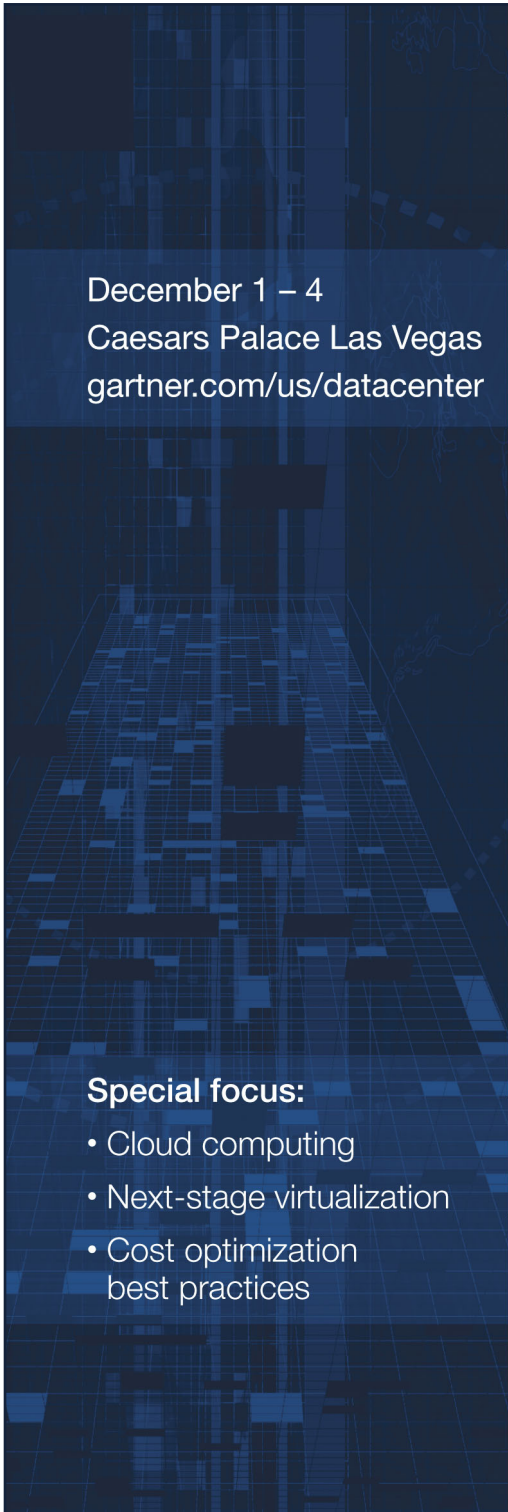
Knowing the cost of downtime can provide IT with a clear reason to upgrade a system, hire more people, or make changes in the process, Whitehead says.

Keep in mind, he adds, that should you decide to address downtime issues by implementing new technology or by other means, you'll need to calculate your costs of downtime again. But hopefully this time, you'll be looking at how much money you've saved by decreasing downtime. 

## Downtime Numbers

To determine costs of downtime, you'll first need to know how much downtime your data center experiences within a given period. Some companies exist to specifically monitor data center outages. The service is primarily intended to immediately report to IT administrators when the data center is down, so they can take quick action. A side benefit, says Jason Abate, CEO of Panopta ([www.panopta.com](http://www.panopta.com)), is that these services also track downtime. Other in-house technologies exist for tracking purposes. And IT administrators could always keep an old-fashioned log.





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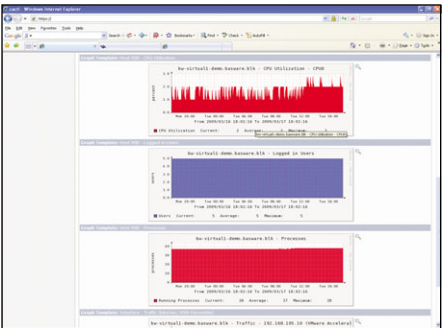
NEW PRODUCT

by Andrew Leibman

## Cloud Computing Without The Headaches

**CLOUD COMPUTING** is the latest data center technology being touted as all things to all enterprises. But often the cost in man-hours alone is enough to torpedo cloud computing as a viable option for small to mid-sized organizations. But thanks to Consonus, an IT infrastructure and data center services provider, the promises of on-demand scaling, real-time monitoring, 99.99% availability, and IT disaster recovery are available to SMEs. The new Consonus VIS (Virtual Infrastructure Service) solution addresses the sky-high cloud computing aspirations of enterprises, but at a price that’s anything but.

According to Daniel Milburn, senior vice president of Consonus, “[VIS] is ideal for businesses that experience seasonal fluctuations in their processing and storage requirements . . . or are in the fortunate position of growing at a faster rate than anticipated.” Milburn says that the infrastructure-on-demand model reduces and, in some cases, eliminates capital investments, making it an ideal out-of-the-box solution for organizations that require regulatory- or business continuity-imposed disaster recovery.



**Consonus Virtual Infrastructure Service**

A cloud computing service that delivers dynamic and scalable capacity, automatic local failover and redundancy, 24/7/365 tech support, and more for SMEs. Starts at \$1,000

Consonus VIS is a flexible managed service that is tailored specifically to meet the customer’s capacity needs, even as they evolve. Consonus VIS consists of the company’s 24/7/365 technical support and fully managed servers, routers, firewalls, and data storage devices backed by the security of fully redundant SAS 70 Type II data centers built around VMware and HP c-Class blade servers and SANs. Customers have remote access to their environment, but Con-sonus provides and maintains the data center hosting facilities and bandwidth.



(888) 260-0990  
[www.consonus.com](http://www.consonus.com)

BLACK BOX FIRETUNNEL 30

NEW PRODUCT

by Blaine Flamig



**Black Box FireTunnel 30**

Combines an 8-port switch, router, firewall, and VPN support all in one secure box.  
\$325.95

## The Internet Access Appliance That Does It All

**BLACK BOX’S** multitasking FireTunnel 30 is the complete package. Actually, it’s a complete enterprise-class Internet-access package. At less than \$330, the appliance is an especially good fit for SMEs on tight budgets but with high security requirements. That’s because the FireTunnel 30 is able to pack into just one appliance Internet access via an 8-port 10/100Mbps Ethernet switch (autosensing and autonegotiating abilities included); an integrated broadband router supporting direct DSL, cable, and satellite broadband connections; a stateful inspection firewall that does port and URL blocking, DoS protection, and email notifications; and VPN support that allows for creating up to 30 encrypted tunnels.

Setup is virtually plug-and-play easy, and Black Box makes configuring and managing the FireTunnel 30’s settings easy via a password-protected interface. For enterprises, VPN concentrator abilities mean employees working remotely can securely connect with one another via the FireTunnel 30 located back at

company headquarters. A VPN client isn’t required for Windows 2000, XP, and Vista systems. The router provides a NAT foundation that adds QoS and filtering abilities. Load balancing is available across two WAN connections, complete with automatic failover capabilities.

“We’re very excited about the FireTunnel 30 because it incorporates dual WAN connections and automatic failover,” says Franco Tavella, Black Box networking product manager. “This kind of support for a redundant Internet connection is a feature usually found only in very expensive, enterprise-class firewalls.”

The FireTunnel 30 packs all this muscle into a rackmountable design that measures 6.5 x 19 x 1.7 inches and fits into standard 19-inch rails. It operates at temperatures ranging from 32 to 104 degrees Fahrenheit. Add everything up, and the FireTunnel 30 is a highly skilled jack-of-all-trades that enterprises, especially those without dedicated IT staff, will find useful.



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[www.blackbox.com/go/vpn](http://www.blackbox.com/go/vpn)



## Study: Uptime More Important Than Ever

High availability is becoming a high priority for IT. According to a recent Marathon Technologies global survey of midmarket and Fortune 500 companies, 70% of those queried report a surge during the past two years in the number of Windows Server applications that require high availability. About half of the respondents say that a majority of their Windows Server applications currently require always-on availability.

It's not surprising that a majority of organizations currently have a few applications that require always-on availability, given all the aspects of an enterprise that the average IT department is tasked with handling. But what is surprising is that a significant number of organizations require high availability in most if not all of their applications. According to the survey, more than 20% of enterprises report that greater than 75% of their Windows Server applications require always-on availability. Another 28% say that 51 to 75% of their Windows Server applications demand uninterrupted uptime. The survey found that 76% of those surveyed deem Microsoft SQL Server and Exchange Server as the top Windows Server applications that require constant availability, and that downtime in either application causes the biggest disturbance.

### The Need For Always-On Apps

Steve Keilen, vice president of marketing at Marathon Technologies, says there are a number of factors that contribute to the increase in always-on applications. "The biggest factor is increased expectations. With more and more people always connected and always communicating, both in their business and personal lives, their expectations are that the companies they interact with are also always-on, always available." There's a big desire for enterprises to be open for business 24/7.

Striving for always-on availability is not without its challenges, Keilen says. "High-availability used to involve complex clustering software or expensive fault-tolerant hardware. . . . Today, there are lower-cost, simpler software alternatives."

Keilen says Marathon Technologies recommends SMEs upgrade to Windows Server 2008 to fully realize the benefits of an always-on infrastructure. And follow Microsoft's advice for upgrading to Windows Server 2008, Keilen says, which starts with "installing the new servers running Windows Server 2008 individually and transferring each of the roles one by one." Next, Microsoft recommends configuring the services and promoting the new server and demoting the old server into the position of primary and backup domain controller, respectively.

by Andrew Leibman

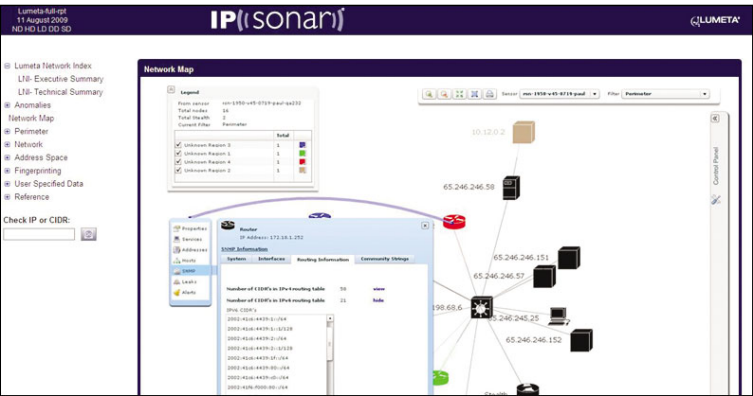


NETWORKING & VPN

FEATURED PRODUCT

# Automated Network Discovery & Visualization

## Lumeta IPsonar Helps IT Managers Understand What Is Connected To Company Networks & Manage IP Connections



Lumeta IPsonar creates network topology maps that show potential vulnerabilities—in this case, from unauthorized IPv6 network connections in an SME.

by John Brandon

THE CONCEPT OF network discovery can often seem a bit complex to SMEs. However, understanding which clients are connected to the network—and why—can help a company fight hackers, defend against a legal discovery, or just provide peace of mind for business owners and IT staff alike.

Lumeta IPsonar ([www.lumeta.com](http://www.lumeta.com)) is a unique product for conducting network discoveries, generating network maps of client devices, and determining exactly why those devices are connected. Unlike running a manual traceroute or ping or using free utilities that look for network anomalies (but lack automated discovery features), IPsonar excels at thoroughly investigating which IP devices are connected.

Yet, the tool does more than just investigate. It's a visualization and network topology tool that scans for any leaks or unauthorized access. And although manual tools often check IP addresses in a way that can cause disruptions, IPsonar is careful to analyze connections thoroughly without causing damage.

"What IPsonar does is find all of the interconnected aspects of your network, particularly in the service of assuring security and compliance, and it does this in a highly automated fashion," says Jim Frey, the research director of network management at Enterprise Management Associates. "This is of clear value to any enterprise, of course, because there typically is no one person or system who fully understands or can track the status of today's large, distributed networks. But this is of value to SMEs, as well, because the compliance requirements as

well as the security threats are no less strict or real, and yet SMEs typically do not have the depth of staff and resources to keep up with everything going on in their networks, due simply to the pace of change, workload priorities, and hours in the day."

### Internet Discovery Roots

Lumeta IPsonar started out as a research project at Bell Labs, aiding federal agencies in mapping and network discovery tasks. Michael Markulec, chief operating officer at Lumeta, explains that the IPsonar product was used originally—and is still used—for mapping outside connections beyond the data center. For example, IPsonar helped government officials see network topology for Internet connections and how servers are interconnected through service providers.

IPsonar evolved into a product that goes well beyond Internet discovery and is now used to analyze any connected device, even HVAC equipment, medical devices in a hospital, and smartphones.

"IPsonar answers the questions about how do you find connected devices, how do you locate them, and how do you manage them on an ongoing basis," says Markulec.

### Why Network Discovery?

Markulec says the number of SMEs with connected devices is growing substantially, and many IT managers find it hard to map those devices and understand the associated security risks. Part of the issue has to do with the multitude of connections in a company, from a teleworker in another state who uses a secure VPN to a guest in the lobby tapping into a Wi-Fi network on a netbook.

"There might be a small branch office that has a cable modem that the enterprise does not know about," says Markulec. "These days, anyone can walk into a computer store and buy a wireless access point and plug it into a conference room. I have seen employees who use a Verizon FIOS connection in a branch office who use it to bypass corporate firewalls—and this is not just in large enterprises."

Apart from the proliferation of connected devices, Markulec says it is also much easier for anyone to set up ad-hoc networks, install wireless printers, or use a smartphone to tap into corporate servers.

"Ten years ago, you needed to go to school for Cisco certification," says

Markulec. "Now, everything is just plug and play—it is very easy to install new devices on the network."

Markulec says IPsonar makes it easy for IT managers to look for potential leaks in a network. He says the tool can analyze how a network connects from one point to another, whether the network uses an approved gateway, and if a client is connected to an unauthorized network. For example, for a bank with several satellite offices, IPsonar can show managers how the entire topology looks. This helps them plug any leaks that could allow unauthorized access, tampering, or hacking.

"Any leaks in the network are potentially huge risks for security breaches," says Glenn O'Donnell, a senior analyst at Forrester Research. "They represent alternative pathways into an otherwise tightly guarded and locked-down perimeter. If security professionals are unaware of these leaks, they cannot lock them down. The result is often a most unwelcome surprise."

### Compliance Regulations

Another common use for IPsonar is in the network discovery required for a security



### LUMETA IPSONAR


(732) 357-3500  
[www.lumeta.com](http://www.lumeta.com)

**Description:** Network discovery tool helps IT managers find connected client devices, leaks in networks, and potential vulnerabilities to security breaches.

**Interesting Fact:** Lumeta counts several government agencies among its clients, including the Office of the President and the Department of Education.

breach, to look for potential breaches, and to prevent any future discoveries resulting from noncompliance with regulations such as PCI or HIPAA. For example, Markulec says IPsonar is used in a wastewater treatment facility where IT staff have added new control systems and need to analyze network changes.

According to Markulec, network management is important to compliance because IT staff in an SME are often not aware of all the IP addresses being used, how many Web servers are running, the potential risks involved, and how the SME is vulnerable.

In the future, he says, network discovery will be even more important as companies evolve from having a few computers and servers running, with a handful of smartphone users, to more difficult challenges. Understanding, analyzing, managing, and blocking unauthorized access help keep IT from being vulnerable. 



CASE STUDY

# Real-Time Data

## Adobe Turns To Terracotta To Meet Its Needs

by Robyn Weisman

**ADOBE NEEDS** little introduction. The multi-media giant has launched everything from Photoshop to the PDF, and as the years go by, it continues to design products for individuals and enterprises around the globe. One example is the company’s LiveCycle product ([www.adobe.com/products/livecycle](http://www.adobe.com/products/livecycle)), a collaboration service that Fang Chang, group product manager for Adobe LiveCycle Collaboration Service, describes as a platform as a service for both developers and enterprises.

“It’s an SDK (software development kit) backed by hosted services run by Adobe that enable companies and developers to create these multiuser types of social, collaborative applications and rich Internet applications,” explains Chang. LiveCycle incorporates chat, video, Web cams, whiteboards, and other collaborative features that might be used in a virtual room or environment, making it easy for customers to create and add

Terracotta took a different approach. Sena says Terracotta’s technology lets you write a regular Java application, mark the object that is going to be distributed, and then just touch the object and indicate that every time, say, a user enters a meeting, the object gets put in this list of users. “I say that the list of users is shared, and this new data is automatically visible in all the machines,” Sena says. “Terracotta really

simplified [LiveCycle] and allows you to create an application that doesn’t really know if it’s running on one machine or 100 machines.”

Finding a solution with distributed cache capabilities was key to LiveCycle’s development. According to Sena, the distributed cache technology in Terracotta’s solution

it to other machines. However, if something happens and another server on Adobe’s end takes over, that replacement server will then fetch the information from the Terracotta servers.

“Other systems broadcast every single change to all the clusters, but Terracotta offers fault-tolerance without needing to broadcast [unneeded] extra data. It is a feature we didn’t think about when we got



the solution, and it just came for free,” Sena says.

### Responsive Tech Support

Sena says Terracotta’s technical support is especially responsive. “We meet regularly with Terracotta engineers. They happen to be across the building, so it’s like, ‘Hey, can we talk? Can you come over?’” Sena says. From the beginning, Terracotta engineers went over the LiveCycle architecture and offered suggestions, and they continue to help Sena if his group runs into problems or wants to do something different.

According to Sena, preflight testing was fairly minimal. “With Terracotta, you make minimal changes to your configuration, so you can start with a real application and make sure it works on one machine. Then you can see if objects can be shared between two machines, and so you run your Java application with some different parameters and run some Terracotta servers to check it out,” Sena explains.

As a result, the implementation was fast because there were no changes to make in the code. Sena says that Terracotta assumes you have designed your application to handle running multiple threads at the same time. “Once you do that for a single machine, Terracotta [can] work on clusters. The blocks that are protected are also distributed,” Sena says.

The number of building blocks Terracotta supplies for many common problems also impresses Sena. For example, Terracotta’s technology enables Sena to optimize the data structure so that if he is on Server A, and he wants Server C to get a particular piece of code, he can send a message directly to Server C. “There are a lot of things we haven’t implemented yet, but when we do, we know Terracotta already provides the right pieces,” says Sena.

These building blocks Terracotta provides make it easy to ready an application for clustering. In addition, Terracotta provides several modules that integrate with a lot of commonly used enterprise software. “If you need to do session management on your application server, Terracotta has a module that automatically makes your session cluster,” Sena says.

“If you’re using Spring [Framework], Ehcache, or other commonly used Java modules, Terracotta has an integration for it. You don’t even need to make changes to these pieces to make them work in the cluster; you just use some particular configuration or something Terracotta gives you,” Sena adds. ■

“Other systems broadcast every single change to all the clusters, but Terracotta offers fault-tolerance without needing to broadcast [unneeded] extra data.”

-Adobe's Raffaele Sena

these collaborative applications into their products.

When Adobe engineers began building the LiveCycle SDK, they were seeking to design it so data would be available in real-time without having to store it in a database. Raffaele Sena, senior computer scientist in the business productivity business unit at Adobe, says that his group started looking around for caching solutions and found that the Terracotta Distributed Cache solution ([www.terracotta.org](http://www.terracotta.org)) was the best fit for LiveCycle.

### A Different Approach To Caching

Both Chang and Sena worked on the Adobe Acrobat Connect Pro Web conferencing product before moving to LiveCycle, and Sena notes that Connect Pro was built in a standard way where a database was used to back up all data. But all of the data used in a LiveCycle-based application was to be real-time data. “When a session ends, the data will be deleted,” Sena says. “The only reason we [would have used] a database would have been to enable for fault tolerance [when] moving data from one machine to another.”

Sena’s group wanted to find a solution so LiveCycle would not have to rely on a database for what always would be uptime data. Adobe looked at several potential commercial and open-source caching solutions, but most of the other services were more like application programming interfaces, Sena says. “With these solutions, you basically needed to know which object you wanted to cache, and every time you touch an object, you had to make a call that said, ‘I’m changing this,’” he says.

uses a different mechanism to send information so that any application using LiveCycle as a platform does not have to worry about problems with stale data.

“You need a way to say that changes are happening and [to tell machines] you need to get the latest version. Terracotta is unique because it’s very transparent and lets me use it not just as a distributed cache

### Terracotta Distributed Cache

A distributed caching solution that enables cache visibility, real-time access to data, and easy clustering.

“Terracotta is unique because it’s very transparent and lets me use it not just as a distributed cache but as a distributed memory. I can keep everything in memory, and every time I change my object, another machine can [access] the new version. It’s very transparent to the user,” says Raffaele Sena, senior computer scientist in the business productivity business unit at Adobe.

(888) 308-3772 | [www.terracotta.org](http://www.terracotta.org)

but as a distributed memory,” Sena says. “I can keep everything in memory, and every time I change my object, another machine can [access] the new version. It’s very transparent to the user.”

Because Terracotta uses a client-server solution, any changes Sena makes to a data structure are sent to the Terracotta servers, which know what other machine is looking at the data. If nobody is using the data, Terracotta will not automatically broadcast

### Red Hat Contends Software Can’t Be Patented

Red Hat filed a brief with the U.S. Supreme Court to uphold a lower court’s ruling that software isn’t patentable. In the case of Bernard Bilski and Rand Warsaw vs. David Kappos, Undersecretary of Commerce and director of the U.S. Patent Office, Red Hat has taken a position against software patents. In particular, Red Hat argued that a federal Circuit Court ignored Supreme Court guidance in 1994 where a ruling gave a patent to someone who could show that software was “useful” and delivered “a concrete and tangible result.”

### Venture Capital Low

According to a report from Thomson Reuters and the National Venture Capital Association, 17 venture capital funds raised only \$1.6 billion in the third quarter. It was the lowest number of new venture funds in a quarter since 1994. The newest large fund was Andreessen Horowitz Fund I, which raised \$58.5 million. The largest amount was a follow-up fund of \$750 million by Khosla Ventures III. Dow Jones also reported that its venture research operation VentureSource raised \$8 billion over the course of the entire year, with 83 new funds.

### Yahoo! Sees Increase In Profit, Decrease In Revenue

After implementing several cost-cutting moves, such as the elimination of more than 2,000 jobs this year, Yahoo! saw its profit more than triple in the third quarter compared to the same quarter last year. The Internet company reported a net

income of \$186 million, or 13 cents per share, which compares to Q3 2008’s net income of \$54 million. The results surpassed industry analysts’ expectations for the company. Yahoo!’s revenue, however, decreased by about 12% year-over-year to \$1.58 billion. Yahoo! anticipates fourth-quarter revenue of between \$1.6 billion and \$1.7 billion.

### BMC Acquires Tideway

BMC Software is set to acquire Tideway Systems, a company that makes data center infrastructure mapping software. Tideway’s mapping tool, called Tideway Foundation, will be integrated with BMC’s Atrium Discovery and Dependency Mapping tool. The acquisition brings Tideway’s library of predefined IT configuration discovery patterns to BMC’s existing Business Service Management platform and will enable the latter’s customers to map changes as well as model future changes. The terms of the deal were not disclosed.

### Nokia Posts Q3 Loss

Nokia reported third-quarter financials, and the news isn’t good. The firm known for its mobile handsets chalked up an \$832 million loss compared to last year’s \$1.63 billion in profit. Nokia blames the losses on sales that fell by 20% to \$13.7 billion from \$18.2 billion for Q3 of last year, a \$1.34 billion write-down of the underperforming Nokia Siemens Networks unit, and a shortage of components for its products. Nokia’s stock also took a 6.6% hit following the report. Nokia now expects to sell 1.12 billion phones and experience modest losses for the mobile infrastructure and related services market by the end of the year.



# Recovering Data From Hard Drives

Whether You Hire A Pro Or Do It Yourself, There Are Steps You Should Take To Prepare

by John Brandon

A SENIOR EXECUTIVE CALLS the help desk: His hard drive is corrupt, and he’s lost all of his data. Or, the CEO sends you an email asking what the next step is when someone permanently deletes an email message that was stored locally in Outlook, with no backup.

For most data center managers, there are two primary options. One is to solve the problem yourself by running data retrieval software on the local drive. This approach is often fast and produces the best results—if a file or folder has been deleted by mistake. In other cases, when a drive is no longer functioning, it might mean hiring a professional service agency that knows how to rebuild a drive from scratch and retrieve data, often at a high cost. For most data centers, deciding how to approach hard drive recovery problems requires asking questions about the kind of data that has been lost, whether there is a backup process in place so that the data can be restored from tape, and if the data is

stored on a single hard drive or on a more complex disk array or storage area network.

Charles King, president and principal analyst with PUND-IT ([www.pund-it.com](http://www.pund-it.com)), says one of the main issues with drive recovery is not necessarily technological, but related to personnel. IT staff are paid to solve problems and should be trained to restore data in the event of a problem. Often, routine data recovery has to do with a deleted file or directory. Those issues should be resolved by IT staff and not outsourced in order to achieve cost savings.

King says companies should first evaluate whether IT staff can restore the data and then look to professional services for help with complex restores. He says another issue has to do with the kind of data you need to restore. For legacy, non-mission-critical data, it is usually worth the effort to restore that data in-house. And, for sensitive data—such as financial records—in-house restore is preferred.

“For anything related to intellectual property and strategic issues, many companies

## Key Points

- IT staff should be equipped to handle most routine data recovery tasks.
- More complex restores will require help from a professional data-recovery service.
- Compliance regulations should be examined closely if sending drives offsite.

prefer to keep a close eye on the data,” says King. “Not to impugn the security of disk recovery companies, but restores by an off-site facility are not attractive to some.”

For critical “single instance” data that has no backup (such as data that was lost before a backup occurred, or on an employee’s notebook), King says companies are better off going to a specialist. He equates this to going to a doctor for routine health issues vs. a surgeon who can do a much more thorough analysis: only the surgeon knows the exact steps to solve a complex problem.

## Recovery Steps

When dealing with a recovery internally, the first step is to decide how critical the data is and whether it absolutely needs to be recovered. After determining the need, the basic process involves booting up the hard drive in such a way that you can recover the data. This can mean using the drive on another computer but usually requires a more thorough check of the drive.

Steven Minter, a spokesperson for Network Data Center Host ([www.ndchost.com](http://www.ndchost.com)), says it is important to determine whether data is not readable because there is something wrong with the data or because there is something wrong with the drive. If the data is corrupt, he says you can try a block copy (one that does a bit-by-bit duplication) to at least capture the data from the drive and place it in another location.

However, if the drive itself is bad, the usual approach is to fix those mechanical issues. When a professional services company does this step, it might remove the actual platters from the drive and rebuild them into an exact match for that model and access the data.

“If the system is not recognizing the disk, the failure may have to do with the PCB or components on the drive and may not [be] a mechanical issue,” says Minter. “You may try to replace the board on the disk with that of the exact same make and model drive. Doing so depends on the make and model of the drive, but in many cases, the external board on the disk can be replaced by removing a few trox nuts and resoldering a 3-4 wire connector to the internal components. If this works, it

## CASE STUDY

# Simple SAN Management

3PAR InServ Storage Servers Maximize Storage Capacity

by Sue Hildreth

BACK IN 2004, Cvent, a provider of meeting and event management SaaS offerings, had outstripped the 1.2TB capacity of its SAN. Its fast growth and rapid acquisition of customers was threatening to overwhelm its storage capacity, and the IT staff was spending a lot of time troubleshooting performance problems and trying to find additional space on its database.

“We couldn’t even grow volumes. We had to play games on the SAN to find additional space on our database,” says Dwayne Sye, CIO of Cvent. “That was all time we weren’t able to spend helping our customers.”

So Sye and others on the IT staff began evaluating possible replacements for the

system. They knew they needed not only more storage space but also much faster performance. At the same time, however, they were concerned that any significant upgrade was likely to be both complex and time-consuming—and being a small, fast-growing company, Cvent didn’t have endless IT resources to spend on a complicated storage implementation, so manageability and ease of use were key requirements for any new system.

After looking at three vendors’ SAN products, Cvent opted to go with 3PAR’s InServ S400 storage server ([www.3par.com](http://www.3par.com)), which has two or four controller nodes, up to 32GB of data cache, up to 640 drives, and a top storage capacity of 300TB. It also features RAID levels 0, 10, and 50.

## Making SANs Simple

A key selling point of the InServ server, says Sye, was its administrative interface. The interface was designed to make configuring and changing drives and setting up the virtual SAN as quick and easy as possible.

“While it’s not extremely complicated stuff—creating volumes, exporting them, resisting, optimizing—it can seem pretty complicated and time-consuming. So the ability to do that so easily [on the InServ], especially compared to our old SAN, was what really sold me,” he says.

3PAR’s interface hides some of the complexity of configuring and administering storage by automating details that don’t

really need a human to do, such as application provisioning and array planning and mapping. That automation, and the easy-to-understand interface, has saved Cvent substantially in IT administrative time, according to Sye.

Performance has also been very satisfactory, says Sye: “Now we don’t have performance problems with the disk subsystems. We don’t have to experience long query times to the database server—no bottlenecks.”

### Saving Time & Effort

For Cvent, the Virtual Copy and Remote Copy functions of the 3PAR InForm software suite that accompanies the InServ have proved useful in reducing administrative time and headaches.

Virtual Copy is 3PAR’s version of a snapshot that provides a quicker method of backing up data than the traditional one of copying the entire set of data. Virtual Copy allows Cvent to take quick snapshots of the data to be backed up on an incremental basis, thus reducing overall backup time substantially.

“We used that when our backup window approached eight hours. By using Virtual Copy, we made it virtually instantaneous,” says Sye.

Remote Copy is a host-independent, array-based data mirroring solution. 3PAR Virtual Volumes are mirrored from one 3PAR InServ server to another. Remote


Copy, which Cvent uses to back up its corporate data, has helped reduce the time to recover lost information from an average of two weeks to two hours.

The InForm Suite also includes 3PAR’s Thin Provisioning capability, which automatically manages applications’ storage needs with a just-in-time approach. This differs from the traditional method of allocating space, wherein an administrator assigns large blocks of unused storage to each application for it to use as needed but that no other application can use. By employing Thin Provisioning, Cvent has been able to reduce its new storage capacity purchases by an estimated 95%.

## Moving To T-Class

Cvent today has more than 4,500 clients, compared to just 45 when it first bought an InServ in 2004. So far, the scalability of the S400s, plus the optimization technologies it leverages, have provided Cvent with ample storage space. But given the growth rate of the firm and the associated growth in storage, Sye is considering an upgrade to 3PAR’s newest server, the T-Class array.

A big part of the appeal of the T-Class, says Sye, is that it offers administrators the ability to change volumes from fat to thin on the fly. So past decisions to use traditional “fat” provisioning—allocating a set amount of storage per application—for a volume can be changed if the administrator sees the need.

“I could deploy everything as thin or fat and then see how the volume gets utilized to decide if I need to change it,” says Sye, noting that being able to make use of these new types of storage optimization capabilities has also changed his way of looking at storage in general. 

## 3PAR InServ Storage Servers

The InServ Storage Server family ranges from the older E200 and S400/800 to the newer F200/400 and T400/800.

“Now we don’t have performance problems with the disk subsystems. We don’t have to experience long query times to the database server—no bottlenecks,” says Dwayne Sye, CIO of Cvent.

(888) 372-7226 | [www.3par.com](http://www.3par.com)



should only be run long enough to get the data off onto a new disk. If it's a mechanical issue where the platter isn't spinning, you can try to crack the case and put those components into another disk body of equal build, and doing so in a clean environment with express care is your only hope, but it should be done as a last resort."

Understand The Complexities

Of course, even with proper staff training and expertise, with adherence to regulations about sensitive financial data, and after analyzing whether the data has a recent backup, the typical data center often uses RAID arrays, SANs, and complex server configurations in addition to single hard drives. Restoring data from these devices may require professional, offsite assistance.

When working with professional services that restore data, Kamel Shaath, the CTO at KOM Networks (www.komnetworks.com), says it is important to realize that the process is also complex—even in dealing with agencies that perform data restores routinely. The companies that perform restores may use a clean room to remove platters from a hard drive and rebuild the platters into a matching drive. The process can sometimes take several weeks or months.

He says it is also important to know that confidentiality is still an issue, no matter how complex the restore process might be, and that in some cases privacy is more important than the data—and it may be possible to re-create the data (even at a high expense) to maintain security. "I'm a control freak—I would want them to come onsite and do it," he says. "If you are a

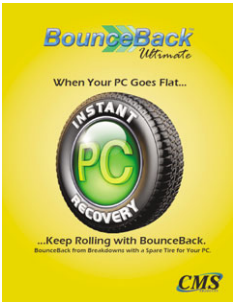
Disaster Recovery, Not Data Recovery

The best plan of action for maintaining data integrity is often to not be forced into a position where you must recover the data. Kamel Shaath, CTO at KOM Networks (www.komnetworks.com) says a disaster recovery plan and good backups present alternatives to having to restore data from a hard drive that is corrupt or unusable. He says cloud storage is another option, but warns that it is not always a good replacement for backups.

"Organizations have looked at the cloud or outsourcing part of their entire infrastructure, but there are a lot of hidden costs," says Shaath. "To surrender control means you are willing to accept whatever happens. I have heard stories where companies outsource but then find they do not have the resources available and they have to wait for a restore or for resources to become available."

bank and you need confidentiality and have no disaster recovery process, I have no sympathy for you at all. Often, companies have plans but they do not exercise them effectively."

Shaath says one common mistake is for companies to go into a panic mode and to follow the same process for all data, regardless of how important it is to the company. In the end, how you respond is critical. Examine the data that needs to be recovered, the complexity of the infrastructure, and whether there are any alternatives to a professional restore process.



Simple & Quick Backup & Recovery

CMS Products BounceBack Ultimate

by Seth Colaner

EVERY DATA CENTER employee knows the necessity of backup and recovery solutions. CMS Products' BounceBack Ultimate is designed to be a "digital spare tire" for PCs, allowing users to back up and restore the entire contents of a PC, including applications, data, personal settings, operating system, partitioning, and formatting.

Features include Instant PC Recovery, which lets users start up a PC from an external USB hard drive in case the operating system or hardware malfunctions, and instant One-Button Recovery, which is a simple and direct way of restoring a PC hard drive without the need for reinstalling anything. The QuickRestore function also lets users quickly restore specific files and folders.

Other features include CDP (Continuous Data Protection), a function of BounceBack Ultimate that continuously keeps new or modified files up-to-date; the ability to let Bounce-Back Ultimate run its processes in the background so users can continue to work while the program takes care of business; and easy-to-configure AES 256-bit en-cryption to secure your data from prying eyes.

BounceBack Ultimate also lets users back up to multiple media, such as an external hard drive or network drive, simultaneously so users can have multiple concurrent backups. With synchronization capabilities enabled, users can save a backup of their projects on a backup drive and use the drive on other computers. When the drive is again connected to the original computer, BounceBack Ultimate automatically syncs the changes, ensuring you're always working with the most up-to-date files. Users can also schedule backups and create backup sets.



CMS Products BounceBack Ultimate

Full download: \$89  
Full CD: \$99  
Upgrade download: \$69  
Upgrade CD: \$79

Lets users back up and restore the entire contents of a PC.

(800) 327-5773

www.cmsproducts.com

3PAR THIN TECHNOLOGIES

NEW PRODUCT

by Marty Sems

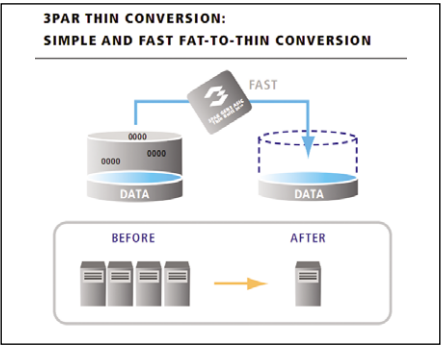
Just What Your Data Center Needs

3PAR HAS FOUR NEW innovations in its thin provisioning efforts. The quartet of products works with the company's new Thin Engine technology and the Gen3 Thin Built In ASIC built into its InServ Storage Servers. Using the new technologies, 3PAR says that a data center can cut a storage refresh cost by up to 60%.

"With our 3PAR Thin Engine driving efficiencies that traditional arrays simply can't deliver, customers can not only cut capacity purchases but also SAN costs, floor space requirements, and energy costs by up to 75%," says Craig Nunes, 3PAR vice president of marketing.

The first new app is called Thin Conversion. Using the Thin Built In ASIC, Thin Conversion pares down a storage volume up to 75% as it is transferred to the array. It utilizes Thin Engine to virtualize the free space, eliminating the need to commit it to physical drive capacity. Because hardware does the heavy lifting, the inline conversion doesn't impact other workloads and can happen at wire speed.

Thin Persistence uses the ASIC to monitor thin volumes and keep their capacities optimized. Again, the Thin Engine keeps freed capacity virtual and off the disks of the array. Among other things, Thin Persistence can slim down VMware virtual



3PAR Thin Technologies

Reduces equipment and power costs by actively providing only the storage your data center needs

Less than \$700 per system (Thin Conversion, Thin Persistence, and Thin Reclamation for Veritas Storage Foundation combined)

machines and data stores and even vSphere 3.5 Storage vMotion data.

Thin Reclamation for Veritas Storage Foundation, the third program in the set of new thin provisioning technologies, is the first to be developed on the Thin API that was a joint effort between 3PAR and Symantec. It uses the Thin Engine to reclaim freed space from VxFS file systems connected to 3PAR storage systems. This specialized application extends 3PAR's continual monitoring and thin provisioning efforts to Veritas storage.

Rounding out the new offerings, Thin Copy Reclamation comes as part of 3PAR's InForm operating system. It keeps tabs on remote copies and thin snapshots and intelligently reclaims storage space unlikely to be needed in the near future.



(888) 372-7226 ext. 2  
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RORKE DATA GALAXY AURORA & GALAXY AURORA LS

NEW PRODUCT

by Kris Glaser Brambila



Rorke Data Galaxy Aurora RAID 6 and SAN appliance, complete with Rorke's patent-pending RAID 6 engine technology. Aurora MSRP starts at 75 cents per GB

Manage Your Storage Environment

RORKE DATA's pair of Galaxy Aurora RAID and SAN appliances can make managing your storage environment a simple task. The 24-bay Galaxy Aurora and 12-bay Galaxy Aurora LS (Lite Speed) feature Rorke's RAID 6 engine technology and an 8Gb Fibre Channel interface (or a 20/40Gb InfiniBand interface on the Galaxy Aurora). The Aurora family can support up to eight host connections and is six times faster at rebuilding than ASIC-based RAID controllers.

The Aurora LS can utilize up to 13TB of storage at RAID 6 and 16TB at RAID 0, is expandable up to 24GB of RAM, and offers a transfer rate of more than 1,000MBps. Moreover, the Aurora offers up to 20TB of storage at RAID 6 and 22TB at RAID 0, with up to 128GB of RAM, and performs at more than 2,000MBps. Both units feature failed drive reporting and auto-rebuild, all while maintaining bandwidth performance.

According to Lori Thrune, professional services account manager at Rorke Data, small and medium-sized businesses will benefit most from Aurora's advanced features, including EOS software, which maximizes uptime and reduces operating costs. The embedded Web-based GUI monitors RAID status and offers troubleshooting tips, and the RTI (Real Time Initiator) allows enterprises to configure the I/O bandwidth on specific client stations.

Services, Too

Rorke provides maximum uptime products with a Professional Services plan all supported by the Rorke Data warranty and guarantee. Rorke's warranty services continue to exceed expectations year after year. The scalability of the Professional Services enables Rorke partners to focus on their core businesses while leveraging Rorke to deliver services on their behalf.



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FEATURED COMPANY

# Comprehensive Online Backups

Remote Backup Systems' Years Of Backup Expertise Pay Dividends To SMEs

by Holly Dolezalek

WHENEVER THERE’S a significant natural disaster in the United States, enterprises are spurred on to pay a little more attention to business continuity and determine what they would do if a disaster caused them to lose all or a significant amount of their data.

Remote Backup Systems ([www.remote-backup.com](http://www.remote-backup.com)) has been in the business continuity business since 1987, providing software for Internet-based remote backups. It employs 30 people, most of whom work at the engineering and technical office that RBS maintains in Chennai, a city of about 8 million on the southeastern coast of India. The remaining employees—lead developers, architects, salespeople, and

## From RBackup To Mercury

Cosgrove is excited about RBS’ new platform, Mercury. Mercury came out about a year ago, and in many ways, it’s the company’s big update of RBackup. “It’s a whole new platform for online backup,” Cosgrove explains. “RBackup is an enterprise solution, and it has a lot of different controls and options and features, which means it can do a lot. . . . A couple of years ago, we started getting requests for a simple but robust platform that could serve millions of users, and Mercury was the result.”

Cosgrove says that the platform’s most exciting feature is its security suite, which has the ability to perform the usual functions—encryption, authentication, etc.—but

## REMOTE BACKUP SYSTEMS

(800) 519-7643  
[www.remote-backup.com](http://www.remote-backup.com)

- Remote Backup Systems has been in the online backup business for more than 20 years.
- The company's latest product, Mercury, features intelligent online backup capabilities in addition to a robust security suite.

can offer it to their own clients,” Cosgrove explains. ISPs, cable companies, and smaller telephone companies have also been using RBackup.

About 80% of sales fall within the North American arena, especially in regions that are regularly threatened by natural disasters, such as Florida, the Carolinas, Texas, and California.

The remaining 20% are concentrated in other English-speaking countries, such as the United Kingdom, South Africa, and Australia, because RBackup is available only in English. But that limitation won’t be present with Mercury, Cosgrove notes, because it uses Unicode and has been translated into 20 languages already. For that reason, he believes that Mercury will stand on RBackup’s shoulders, so to speak; one avenue of growth for the company will likely be RBackup users who choose to convert to Mercury.

Cosgrove points out that sales to existing licensees are up this year, which means they’re selling more licenses for RBackup to established enterprises and backup companies. That’s a switch from its usual business model, which is ordinarily dominated by sales to new licensees. “We’re not making less money, but a year ago, we were making more from new than from existing,” Cosgrove says. “We still are, but

business from the existing licensees is catching up pretty fast.” Cosgrove isn’t sure why, although he suspects that with the economy in the state it’s in, people are afraid to go into business for themselves and are hanging on to their money.

## Competitive Edge

Cosgrove says that when comparing RBackup with its competitors, it can be a challenge to explain the price differential. “Some of our competitors charge users \$5 a month for what they call ‘unlimited’ backups,” Cosgrove says. “Our software is more expensive, but theirs doesn’t back up Exchange files or perform other functions that ours does, and it’s sometimes hard to get that across to the marketplace.”

Still, Cosgrove has no doubt that Mercury will be a game-changer for the company. He says that’s partially because the platform has added features and functions that providers will need to compete with other online backup providers, such as file sharing and the ability to synchronize computers.

But Mercury has also been carefully designed for the future, with architecture to add industry-specific functions down the road. “We’ve built in hooks for e-discovery, for example, which is a module that’s specific for document security that we’ll be rolling out someday,” he says. “It will include the ability to tag certain files [and] to create strict limits on who can open what document under what conditions, on which computers, and on what dates.”

Cosgrove believes his company has planned well to make Mercury more attractive to more consumers each year. “I’m excited about Mercury,” he says. “We’ve thought about a lot of possibilities, and just about anything you can imagine being done with data storage is designed in and will be released in the future.”



**Remote Backup Systems**  
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Remote Backup Systems’ Mercury platform has been carefully designed for the future, with architecture to add industry-specific functions down the road.

administrative employees—work at the company’s Memphis, Tenn., headquarters.

The company’s flagship product is its RBackup software, which it sells to enterprises that want to use it internally or to proprietors who want to start their own online backup business. RBS measures its sales in terms of servers, each of which can accommodate thousands of users, and so far the company has 8,600 servers running RBackup software. “That translates to about 1.5 million clients or end users,” says Rob Cosgrove, CEO and founder of RBS. He estimates that just more than half of the servers running RBackup are companies offering online backups to end users.

In the small to medium-sized enterprise market, Cosgrove believes that RBackup sells well because it’s an enterprise-level product that has an affordable price point for small companies. “The 25-client version starts at \$2,400,” Cosgrove says. “It’s a product that generates a residual income month after month and doesn’t need to be serviced much, so it’s interesting to the smaller companies.”

has capabilities that go beyond that to approximate bodyguard functions. “Let’s say you lose your laptop; you can go to the Mercury portal and report it stolen,” he explains. “At that point, it turns on the laptop’s camera and microphone and gets images of the person who took it when they open it. Those images are uploaded silently, and it also analyzes the hotspots and wireless access points nearby. Using information from databases on the Internet, you can actually locate that computer.” Like many security suites, Mercury also can remotely erase critical files from the laptop.

## Selling Worldwide

RBS is an international company, but so far RBackup sells mostly in English-speaking countries. The software sells well in industries that have to comply with regulations regarding data storage, such as health care and financial services. “Our customers are often small shops under \$5 million themselves, such as computer centers or repair shops, but proprietors like accountants like it too so they

## Remote Backup Systems Product Pricing

Package	Features	Price
RBackup Starter	60 days priority support, one year basic support, presentation version, business kit	Starts at \$2,400 for 25 clients; also available on a per-client, per-month basis
RBackup Pro	60 days priority support, one year basic support, presentation version, business kit, registration wizard plug-in	Starts at \$6,100 for 100 clients; also available on a per-client, per-month basis
RBackup Pro Plus	SQL Server plug-in, Mirror Server, online installer plug-in	Starts at \$22,000 for 500 clients; also available on a per-client, per-month basis
Mercury	Runs on Windows 2003 Server, uses Oracle 11g as a back-end, available in 20 languages	Starts at \$50,000



FEATURED PRODUCT

# High Performance, Low Costs

Adaptec MaxIQ SSD Cache Performance Kit Gives Data Centers A Boost

by Tessa Warner Breneman  
& Seth Colaner

IT MANAGERS have seen their budgets shrink throughout the past year, which makes finding cost-effective data center solutions more important than ever. However, high performance also remains a top priority. To satisfy both these needs for enterprises, Adaptec has developed the MaxIQ SSD Cache Performance Kit.



## ADAPTEC MAXIQ SSD CACHE PERFORMANCE KIT

(800) 442-7274  
www.adaptec.com/MaxIQ

**Description:** MaxIQ SSD Cache Performance Kit boosts I/Ops without additional hardware. It's designed for enterprises where I/O rates, throughput, or latency are critical, such as data centers or cloud computing environments.

Starts at \$1,295

MaxIQ is engineered to modify standard servers to both perform at higher levels and be more cost-effective scale-out application storage appliances than traditional hard drive-only arrays. The MaxIQ SSD Cache Performance Kit also helps enterprises meet the needs of I/O-intensive data center and cloud computing environments by using less hardware to increase I/Ops. In fact, the MaxIQ SSD Cache Performance Kit offers a maximum performance of 30,000 I/Ops on even small arrays of inexpensive drives—equivalent to the performance of more than 100 high-end HDDs.

### A High Performer

Large-scale programs, such as databases, Web servers, e-commerce applications, and email, all benefit from the SSD-based caching architecture of the MaxIQ SSD Cache Performance Kit. MaxIQ SSD Cache Performance Kit performed well in benchmark testing (performed by a third-party test

lab), which measured the performance of MaxIQ throughout varied workloads and benefits of the caching technology for enterprises. The real-world tests, conducted by AppLabs, showed the following:

- **Up to 11X performance improvement** in small block random read workloads
- **Up to 5X performance improvement** in Web server workloads
- **Up to 5X performance improvement in application response times** in a Web server application environment
- **Up to 2X the number of users** with improved response times in a real-world Web server application environment

The workload test, which produced results that showed 11X performance improvement in small block random read workloads, also showed a 4X performance improvement for file server workloads and OLTP workloads. These results were measured using a combination of real Web Server and database applications and a variety of Iometer test scripts.

In scalability tests, the I/O throughput of the server system scaled beyond 5X for both Web server and file server workloads because SSDs are included with the server as cache. A Web server throughput test was also conducted by emulating clicks on Web sites from several hundred people to generate the Web site traffic. With MaxIQ enabled, the transaction completion rate and throughput of the Web server was 4X better.

### Learned-Path Algorithm

The MaxIQ SSD Cache Performance Kit is able to achieve such high performance is by combining Intel powered SSDs with MaxIQ SSD caching software and incorporating a technology called Learned-Path Algorithm, which is engineered to discover frequently accessed data. The patent-pending algorithm moves that data to the SSD cache so it can be quickly retrieved at a later date.

To maximize the storage efficiency of the MaxIQ SSD Caching Software, frequently accessed cached data is updated on later writes to the same blocks. The real-world Web server application tests confirmed the algorithm's ability to recognize the most frequently read data and cache it for future use.

### Hybrid Array

MaxIQ SSD Cache Performance Kit works with Adaptec Series 2, Series 5, and Series 5Z storage controllers for SATA and SAS drives and combines the best of both solid-state and hard disk drives into a technology called HPHA (High-Performance Hybrid Array). This enables the MaxIQ SSD Cache Performance Kit to benefit from both solid-state and hard disk drives for higher read bandwidth, higher I/Ops, and greater mechanical reliability. It also assuages the SSD's limited capacity and lower streaming write bandwidth.

By combining the use of SSDs and SATA or SAS HDDs, the HPHA creates an array with a large, scalable capacity, along with low latency and efficient energy use. Also, an SSD-aware storage controller uses intelligent storage processing that establishes how best to store data between the HDDs and the SSDs without affecting the applications or operating system.

HPHAs put frequently accessed data on an SSD cache pool, where the ability to

MaxIQ is transparent to any operating system and compatible with all industry-standard platforms to allow for caching in any application. This also means that MaxIQ won't require storage architectures, operating systems, or application software to be modified in any way.

With a High-Performance Hybrid Array and MaxIQ SSD Cache Performance Kit, you'll benefit from:

- **Reduced capital expenditures.** Increase the number of transactions and users hosted per server and lessen the need for additional equipment.
- **Reduced operating expenses.** By deploying fewer servers and storage systems, you can cut maintenance and energy costs.
- **Uncompromised data protection.** All data is stored on hard disk drives with data protection algorithms; data stored in the SSD cache is simply a copy of stored data.
- **Simplified integration.** No application-specific tuning, software rewrites, or user intervention needed.
- **Improved SSD consistency and reliability.** Data is written to the hard drive

## About Adaptec


Adaptec has been providing data storage hardware and software tools designed to boost performance, data reliability, and manageability for more than 26 years. At its Milpitas, Calif., headquarters, Adaptec devotes itself to producing products for the data storage I/O market, including ASICs, host-bus adapters, SATA/SAS and SCSI RAID controllers, and storage software for IP storage area networks. As a member of the Green Grid (a global association working to improve energy efficiency in data centers and business computing ecosystems), Adaptec has also launched a Green Power initiative to produce more energy-efficient technology.


quickly read data can be beneficial. Data that is accessed less frequently is copied to rotating disks. MaxIQ SSD Cache Performance Kit then familiarizes itself with the data to learn how frequently blocks of data are used and which location would be most advantageous for each of the data blocks. Over time, the HPHAs stay updated and become more accurate.

According to Adaptec, capital and operating expenses can be cut by as much as 50% with MaxIQ, because the number of users per server has increased and the number of servers needed to supply end users with service quality levels is reduced.

and copied to SSD only when there's a potential benefit to the application, reducing wear on the SSDs.

### Better Performance, Lower Costs

Rather than purchase new hardware, let MaxIQ SSD Cache Performance Kit optimize the storage in your industry-standard servers for your I/O intensive data center and cloud computing environments. You can reduce capital expenses by 50% and increase I/Ops without adding equipment. This enables users to cut energy and maintenance costs, which adds to the bottom line of your enterprise. 

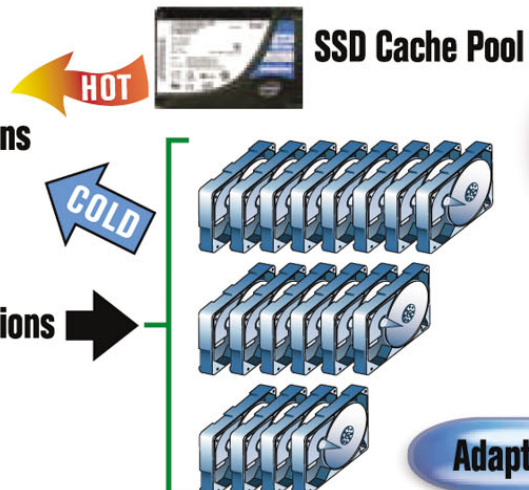


SAP  
SQL  
Exchange  
Server  
Sharepoint

Random I/O  
Applications

Read Operations

Write Operations




SSD Cache Pool

**Up to 5X Faster Than Pure SAS**

Adaptec Patent Pending

### Adaptec MaxIQ SSD Cache Performance Kit Features

- Trims capital and operating expenses by as much as 50%
- Powered by Intel SSDs
- Learned-Path Algorithm engineered to discover frequently accessed data
- High-Performance Hybrid Array technology combines best of solid-state and hard disk drives
- Maximum performance of 30,000 I/Ops
- 5X faster than hard drive-only arrays
- Compatible with Adaptec Series 2, Series 5, Series 5Z Storage Controllers
- Ideal for Web servers, file servers, databases, and other applications with read-intensive workloads





FEATURE PACKAGE

Solutions To Common Data Center Problems

We talked with some industry insiders to come up with solutions to some of the most vexing data center problems in four key areas.

Easing Data Center Equipment Troubles | 30

■ A badly run data center can quickly drive increased costs and hold the business back from reaching its potential.

Migration Complications | 31

■ Migrating to new applications can seem like the trial that separates the geeks from the amateurs. Every IT manager faces it eventually, but are you ready for the problems?

Securing End-User Systems | 32

■ There are many ways to secure end-user systems, but data center and IT managers are bound to run into problems along the way.

Storage Backup Problems | 32

■ The concept of storage backups is simple, but the list of what can go wrong is long.

# Easing Data Center Equipment Troubles

Simplicity & Transparency Can Save Headaches & Money

by Carmi Levy  
• • •

AS COMPANIES IN ALL SECTORS seek opportunities to save capital and operating costs and to limit risk to their business, data centers are playing an increasingly critical role in improving organizational effectiveness and efficiency. But a badly run facility can quickly ruin the party by driving increased costs and holding the business back from reaching its potential.

Key Points

- Integrated monitoring solutions can detect failures and minimize response and resolution times.
- Protecting physical access to the facility and establishing processes that minimize the need for onsite work can minimize inadvertent damage to equipment.
- Ensuring that backup and disaster recovery-related equipment is maintained and replaced appropriately can make an SME more fault-tolerant.

High equipment failure rates, poor integration with project teams, and growing numbers of infrastructure-related calls to the help desk are all signs that something isn't quite right in the data center. Data center managers should focus on the following common issues to reduce exposure, limit costs, and ultimately improve organizational competitiveness.

Users Notice Outages Before IT

If inbound calls to the help desk are IT's first indication of a problem with a server,

router, or similar piece of data center equipment, the organization's monitoring capability needs improvement.

Remote monitoring should be implemented for all hardware in the data center. Ideally, all monitoring should be managed through a consistent solution with a common interface, as multiple, overlapping solutions can increase IT staff workload and lengthen response times.

Data center inventories should be updated to include asset information for each piece of equipment and whether it is viewable and controllable remotely. Older units that lack such capabilities should be fast-tracked for replacement or decommissioning.

An Out-Of-The-Loop Help Desk

Data centers are often treated as proprietary resources by the IT departments that are responsible for them. In such cases, help desks may lack real-time visibility into equipment performance, which further hampers their ability to provide guidance and support when failures occur.

To keep help desks in the know, admins should extend monitoring capabilities to Tier 1 support teams, as traditional tight ownership of data center equipment is insufficient in today's increasingly virtualized, interdependent, and shared services-based data centers. Provide training and process guidance to allow help desk analysts to manage outages and work with operations and project teams to proactively identify and resolve issues and minimize business impact.

By leveraging the help desk's oversight and coverage competencies, IT can more rapidly post front-end messages that



advise the organization of widespread outages, which can in turn reduce call volumes and resolution times. Help desk involvement also makes it easier to coordinate moves, adds, and changes within the data center and minimize impact on other systems and business areas.

Lackluster Physical Security

Inefficient floor layouts and inadequately defined maintenance procedures can result in servers, storage units, and routers being accessed far more often than they ought to be. Sending staff into the data center to resolve every problem isn't just inefficient; it's also risky, as it increases the likelihood that machines will be jostled in the process, which can in turn result in a higher incidence of unplanned outages. Greater physical presence in the data center also raises the potential for both intentional and unintentional damage to equipment and related systems.

Therefore, IT should minimize the amount of physical interaction between humans and machines by securing the perimeter and updating operations procedures. "The chance of incidences occurring is reduced by the number of hands in the cabinet," says Jerry Allen, technology operations center manager for Georgia State University. "If you reduce the number of hands in the cabinet or the number of times the door is open, you reduce the issues that that cabinet has."

Rewrite operations and maintenance procedures to ensure remote management procedures are first exhausted before an individual is dispatched to the machine in question. Tighter physical security procedures also increase the

likelihood of an IT employee exploring all other alternatives before heading into the facility.

Out-Of-Sync Backup/Disaster Recovery Equipment

Trouble can result when equipment changes within the data center are not effectively communicated to all stakeholders. If the business areas change their operating procedures but fail to advise IT, the environment used for backup will not remain in sync. This could leave the organization at risk of a nasty surprise—lost data, greater downtime, or both—in the event of a real disaster.

"Many companies we survey do not have a disaster recovery plan that reflects the current state of their data center, nor do they rehearse disaster recovery often enough," says James Staten, principal analyst for IT infrastructure and operations with Forrester Research. "Update your DR plan at least every six months and get into a process of updating it each time you make major changes to the infrastructure."

IT should also update process documentation to incorporate messaging to all stakeholders with operational connections to given pieces of data center equipment or systems. Ensure that these frameworks are incorporated into data center staff training and remain easily visible to all operational and project staff. This will make sure that all critical resources—including those responsible for DR validation—are aware of ongoing changes and can respond accordingly to ensure that mission-critical resources and their corresponding redundant pieces of infrastructure remain functional.

Top Problem: Improperly Patched Equipment

Manual patching and update procedures may fall short when the number of machines in a data center and the complexity of their implementation exceeds IT's ability to keep up. This can result in increased security vulnerabilities, reduced system performance, incompatibilities, and outages.

To resolve this issue, automate patching and updates and leverage existing remote control capability to minimize workload and, more importantly, the potential for human error. For organizations that, for business, operational, or regulatory reasons, must test all changes before moving them into production, set up test labs with representative builds of all target equipment.



# Migration Complications

Forethought, Testing & End-User Training Can Ease Migration Headaches

by Holly Dolezalek

• • •

**MIGRATING TO NEW APPLICATIONS** can seem like the trial that separates the geeks from the amateurs. Every IT manager faces it eventually, but are you ready for the problems? Do you know their solutions? Here is a roundup of some common migration problems and how to resolve them.

## Compatibility

One of the most common sources of migratory annoyances is incompatibility, and it can come in many forms. A new application may not be compatible with the OS or with an existing application, or an application may be coded to check for a specific version of the OS instead of the latest, causing the application to break

### Key Points

- Patch or upgrade your OS or application ahead of time so that the new version doesn't cause easily avoided incompatibilities.
- Come up with a data migration plan that includes redundancies so that there's no single point of failure. Make sure your data converted properly before wiping any backups or machines.
- Training and informing users in the new application ahead of time can save a lot of help desk calls after the migration.

when a new version is installed. Changes in security features, device drivers, and any number of other factors can necessitate fixes after migration.

Start with the release notes to get a handle on known compatibility issues. You may find that you need to do some work before you start migration. "You may have to upgrade or patch the OS or other applications first in order to ensure a smooth upgrade," says Mike Robinson, senior product marketing manager for Novell ([www.novell.com](http://www.novell.com)). Those refinements may resolve some of the driver or other problems that you would have faced otherwise.

There are some options for common migrations that allow you to dodge what can't be changed. For example, the migrations to Windows 7 have begun, and especially for those companies that haven't switched environments in a long time, there may be many applications that won't play nice with the new OS. You have the option of using WinXP mode inside of Windows 7, meaning you can create virtual machines that run WinXP for those applications that can't work with Win7.

## Data Difficulties

A migration may go smoothly in terms of installing new software but not so smoothly in terms of what happens to the data during the migration. Sometimes files are missing; other times, the new data files create incompatibilities with existing applications, such as office suite upgrades. For example, in an upgrade from Office 2003 to Office 2007, file names of Word documents change from .DOC to .DOCX or .DOCM, depending on whether the file has VBA code in it. In this scenario, links between Excel spreadsheets and Word files may break.

Start by making sure that you have a way to go back to the pre-migration state if data files are missing or inaccessible after migration is over. "Imaging tools can be an important utility for migrations," says Rob Schaper, sales manager for Laplink ([www.laplink.com](http://www.laplink.com)). "For instance, after you install Windows 7, you can't just roll back the upgrade if you find that some data is missing. So you may have to reformat and reinstall the image so that you can re-migrate without excluding that data."

Exposure of sensitive data from a privacy standpoint is a concern here, as well. "You have to back this kind of data up to the server in a way that doesn't allow the admin to read the data, and that can be a challenge," says Eric Voskuil, chief technology officer for BeyondTrust ([www.beyondtrust.com](http://www.beyondtrust.com)).

In all cases, the best practice may be to back up and retrieve the data after migration in a way that guarantees no single point of failure. "For example, if you think you've uploaded all data from 1,000 machines to a server, you might want to download it and test to make sure you can restore it before you wipe the machines," Voskuil says. "Or you might even want to back up your data and then create and test your new machines first, before you wipe the old ones."

## The People Factor

People can have a big effect on whether your migration goes smoothly. Changes in permissions, latency, and interfaces can cause a flood of calls to your help desk even if the migration went well from a software perspective.

Getting buy-in first will save you a lot of headaches. The more meetings you have with the people who will be affected by the migration, the better off you'll be when D-day arrives.

"By involving as many groups as possible as you're going into process and conversion, you get people to feel that the migration is being done for them and with them, as opposed to [being done] to them," says

## Top Problem: Hardware Compatibility

Are the physical assets you're going to load new software on actually ready for it? You'd be surprised how often IT staff catch the software incompatibilities and forget all about the hardware.

IT managers who already have a solid inventory of all available machine types and resources will be ahead of the game on this one. For example, if you're heading for Windows 7, an inventory that includes processor and memory footprints will tell you whether all your PCs are ready for it.

Additionally, don't assume that just because your users' PCs have the resources to handle the upgrade that those resources are available. Get users to clean up their Desktops, remove unnecessary files, and back up necessary files in case there's any problem after the migration is over.

Chip Bates, director of product development at ConverterTechnology ([www.convertertechnology.com](http://www.convertertechnology.com)).

Two groups to especially target are business unit managers and internal training staff, if your company has them. The managers can help you with the task of communicating to end users all the benefits of the planned migration, and the training staff can help you develop any training in the new interface that will help users get accustomed to it more quickly.

"You'll face extra calls to the help desk if you don't train ahead of time, as well as a downturn in productivity until they get the hang of it," Bates says. "It can also instill a sense of ownership in the new tool and eliminate the element of surprise."

Be sure to communicate early and often with any users whose privileges are going to be affected. Changing privileges can cause as much disruption as a brand-new application or operating system, even if you're changing them in a way that makes more sense from a compliance or security perspective. "When you take away something people had, if you don't sell that well, there can be a backlash," says Voskuil. "People assume that whatever rights they had before, they should have had, or they assume that something has stopped working and get frustrated."

It also helps to conduct the migration slowly so that each batch of new users has time to adjust before another starts seeing it. "To prevent a flood of support calls, upgrades are typically staged," Robinson says. **P**

## Forrester: WinXP's End Is Nigh

Industry analyst firm Forrester Research released its OS migration report for enterprises. The firm recommends companies migrate from Windows XP by 2012. Forrester's report shows that 75% of the PCs in small and medium-sized enterprises currently utilize WinXP. Forrester also predicts that by 2012, software vendors, driver developers, and ISVs will be less likely to include XP support in their products, especially if Windows 7 sells well. Microsoft also plans to phase out WinXP support, and companies will only be able to get paid support between July 2010 and April 2014. Mainstream support for WinXP Professional ended this past April.



## Intel, AMD Feud Over Antitrust Evidence

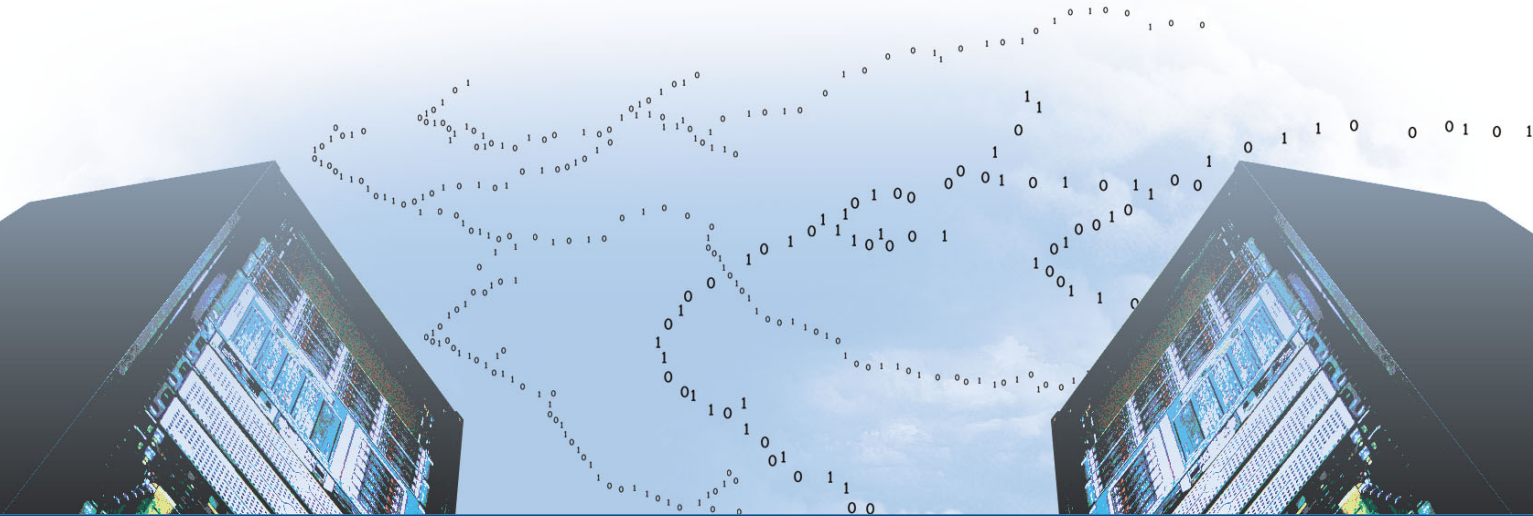
Intel and AMD are seeking sanctions against each other over evidence retention related to AMD's suit against Intel in 2005. Both companies are accusing each other of deleting documents that are vital to the court case. Intel's motion accuses AMD of faulty document retention, claiming the chipmaker knew it was going to file a suit against Intel in 2005, yet the company continued to delete documents. However, AMD claims that Intel and its counsel were not diligent in "designing and implementing an effective document preservation program."

## Seagate Reports Income Increase

Although Seagate reported that its fiscal first-quarter revenue dropped and expectations are that revenue for the current fiscal quarter will dip as well, profits for fiscal first quarter climbed upward from the same period last year. The company reports that revenue for fiscal first quarter, which ended Oct. 2, reached about \$2.7 billion, down from about \$3 billion for the same period last year. Net income for the quarter, however, reached \$179 million, up from the \$57 million reported last year. The raise is being partially attributed to cuts to company debts and cost-reducing measures Seagate enacted. Seagate reported hard drive shipments of 46.4 million units, a dip of about 9% from last year's 49 million shipments. The company estimates revenue for the current fiscal quarter will top out at \$2.85 billion, down from \$3.4 billion during the same quarter last year.

## Gartner Predicts IT Spending Increase

Gartner says global IT spending will rise 3.3% to \$3.3 trillion in 2010, but the research firm warns that the industry won't likely return to the levels it reached in 2008 until 2012. Currently, the global IT industry is ending its worst year ever, with a 5.2% spending slide. Hardware alone was hit with a 16.5% decrease in spending compared to 2008. Software spending fell by 2.1% but is expected to recover enough to increase by 4.8% next year.





# Securing End-User Systems

Problems To Avoid To Make Protecting These Systems A Piece Of Cake

by Chris A. MacKinnon

YOU CAN'T TAKE AWAY end-user systems in today's enterprise—you might as well remove the glue that holds the company together. However, when end-user systems are compromised, your company's data is at risk. Fortunately, there are many ways to secure end-user systems, but data center and IT managers are bound to run into problems along the way. Here are some solutions to a few common problems that relate to securing end-user systems in the enterprise.

### Understand Vulnerabilities & Verify Security

Anthony James, vice president of product marketing at Fortinet ([www.fortinet.com](http://www.fortinet.com)), says understanding network-exploitable

vulnerabilities of data center infrastructure and implementing security to protect those vulnerabilities are not easy tasks. James says the risk associated with data center-based infrastructure is likely to evolve constantly. "IT and data center managers can understand network-exploitable vulnerabilities by implementing a vulnerability management policy and by performing regular assessments of data center assets," James says. "You can shield network-exploitable vulnerabilities by closing down unnecessary ports and using intrusion prevention and application-aware filtering to further reduce the risk of exposure."

Fred Pinkett, vice president of product management at Core Security Technologies ([www.coresecurity.com](http://www.coresecurity.com)), says when it comes to verifying security, it is hard to

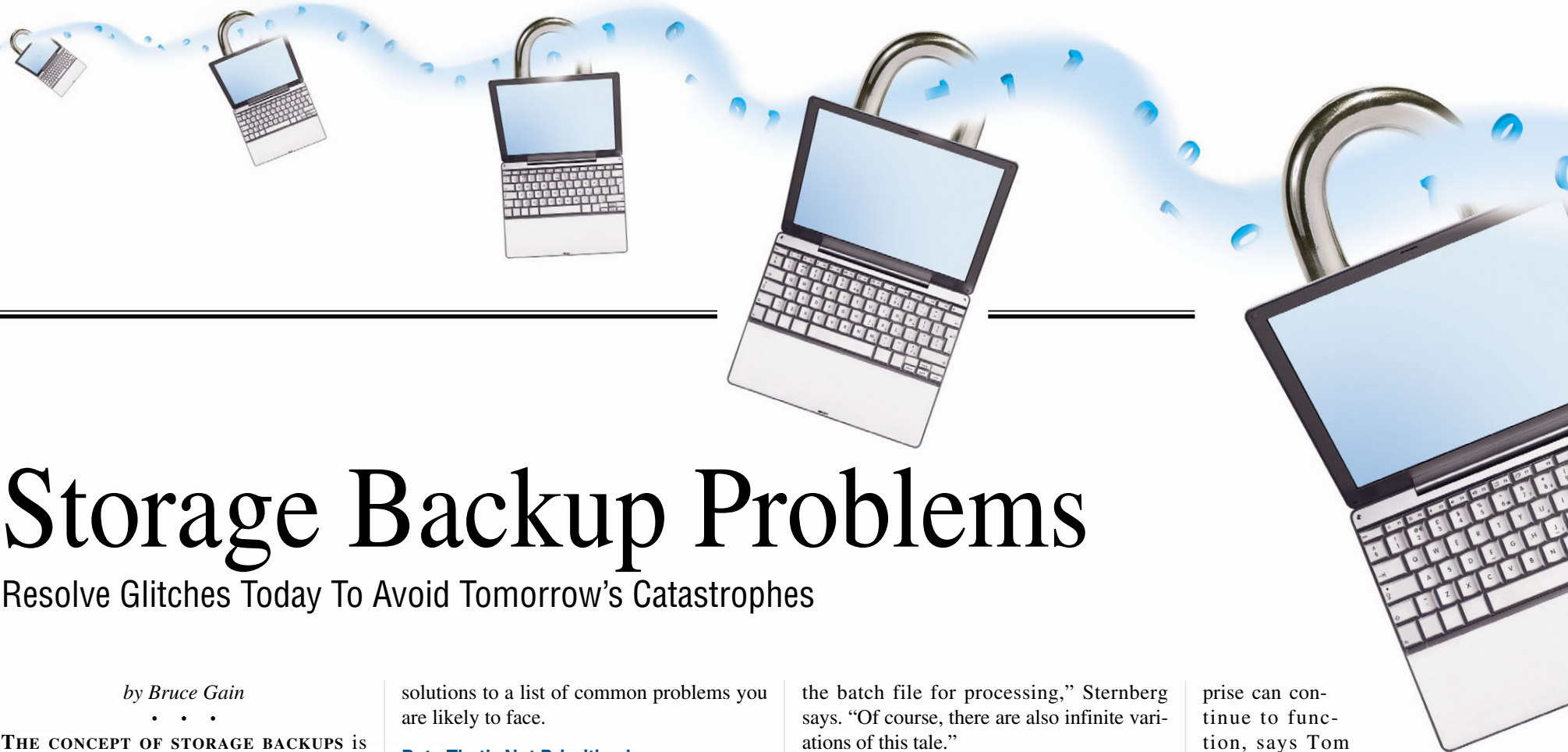
### Key Points

- Vulnerability management policies and assessments of data center assets are vital to protecting end-user systems from network-exploitable vulnerabilities.
- Employ network access control solutions to ensure that your network is safe even when being accessed by a variety of end-user mobile devices.
- Securing ports, locking down devices, educating end users, and keeping up on security software maintenance are all important parts of securing end-user systems.

know if all the parts of the security systems are in place and working. "To do this," Pinkett says, "you should run tests that mimic how attacks will happen. This of course requires penetration testing, either brought in using software designed for the task or from outside services."

### Threats Spread By Authorized Users

James says data centers must set up strategies to ensure the security policies in place address the methods and devices that are accessing the data. He says clientless endpoint security control enables the data center to inspect end-user systems and determine the presence of the necessary security software. But although this is one piece of the puzzle, James says the ability to scan data coming from end users' systems is



# Storage Backup Problems

Resolve Glitches Today To Avoid Tomorrow's Catastrophes

by Bruce Gain

THE CONCEPT OF STORAGE BACKUPS is simple: Copies of your enterprise's data are created and made readily available in case they are needed. But as admins know all too well, putting backup plans into practice can be fraught with trouble.

The list of what can go wrong is long: Files on storage media can become corrupted, tape could get damaged, or software might not work like it is supposed to.

### Key Points

- Distinguish between data that is critical and data that is less important when setting backup policies.
- Ensure that backups do not interfere with users' workflows or the enterprise's operations and remain mostly transparent to those outside of the IT department.
- Make sure that files that are either open or in use can be backed up, as well.

Admins down in the trenches generally have many anecdotes to tell about the pitfalls associated with backups. To help make storage backup easier, here are some

solutions to a list of common problems you are likely to face.

### Data That's Not Prioritized

Those in charge of backups often only concentrate on making sure that the source data is copied and backed up somewhere, with little attention given to which data is crucial and which is less important.

This inattention can be attributed to what Haim Sternberg, president and owner of Cherry Systems ([www.cherrysystems.com](http://www.cherrysystems.com)), says is a lack of effective policy before backup systems are put into place.

"The typical error before the backup is run is the implementation of the 'policy' that defines what, how often, file selection method (full, incremental, differential), and destination (tapes, backup servers, etc)," Sternberg says. "The backup operator then follows the policies, and the backup software has no specific knowledge of the relative importance of files among the thousand or more files it is about to back up."

Because all the files are of equal importance, the admin picks the volumes and folder that appear "important" based on the policies. The sad result is that critical files do not get backed up, Sternberg says. "Missing among others [may be] the folder named Temp\_pr\_process, which is the folder the payroll department created to prepare

the batch file for processing," Sternberg says. "Of course, there are also infinite variations of this tale."

The remedy is to establish which files are those that absolutely must be copied, compared to the rest of the data. "You need to focus on the full 100 files that cannot be lost, but instead one often ends up protecting everything," Sternberg says. "You need to communicate what is important so the crucial files get backed up."

It is crucial to think about what is really important from both a business and technology perspective, as well. Restored data, for example, must meet the enterprise's essential business needs. Recovered data must also be able to support the systems that have to be running so the enter-

prise can continue to function, says Tom Cornwell, storage and virtualization architect for Hosted Solutions ([www.hostedsolutions.com](http://www.hostedsolutions.com)). "Another way to look at it is to determine what you absolutely cannot afford to lose," Cornwell says. "It's about what the consequences are by not having the data."

### Backups Interfering With Workflow

Users outside of the IT network appreciate backups when they are necessary but will object when the process interferes with their workflows. Although some admins may take offense to users complaining about

## Top Problem: The Backup System Is Never Tested

IT departments will spend a considerable amount of time and money setting up backup systems. But all too often, the project ends once the system is set up. According to analysts and industry experts, most admins do not regularly test their backup systems to make sure they are working properly after they are put in place.

"Sometimes backups are running but the administrator has not tried restoring data. When a disaster occurs, valuable time is spent learning the process for restoring data and services," says John Matzek, co-chief executive officer of Logic IT Consulting ([www.logicitc.com](http://www.logicitc.com)). "The resolution is to have a disaster recovery plan and test it. Practice restoring files and bringing a server online from backup."



still the fundamental step toward protection. “Utilizing both technologies can certainly create a more secure environment for the data center and offers more protection than relying on a single technology,” James says.

According to Joe Raccuglia, director of security solutions at Alcatel-Lucent ([www.alcatel-lucent.com](http://www.alcatel-lucent.com)), the propagation of laptops, the greater reliance on contract and guest workers, and new desktop applications significantly increase the potential for malware in the data center. Raccuglia says the solution here is to provide an integrated HIC (host integrity check) solution.

An HIC solution provides network access controls that ensure all devices on the network meet specific security policies. “An HIC solution can proactively scan the devices to not only verify that there are no malware on the systems, but also ensure that specific security capabilities are enabled, applications are up-to-date, and noncompliant applications are disabled,” Raccuglia says. “Ongoing health checks with an HIC solution can also be performed to ensure the device continues to meet the data center’s security policy.”

Coupling a robust HIC solution with role-based access controls in switching infrastructure devices provides additional security capabilities by not only helping ensure the security policies are in effect



backup systems given their importance, the task of copying data and applications should, in fact, be transparent to the end user, says Jeff Moyer, director of worldwide storage services at HP Enterprise Services ([www.hp.com](http://www.hp.com)).

“Today’s mobile workforces demand an efficient, network-based backup capability. The backup software and processes to maintain data must be nonintrusive to the normal use of the employee’s workstation,” Moyer says. “In addition, organizations need to think about and provide a way to securely transport and store data while providing user-friendly options to allow user-driven restore of data.”

However, users need to meet the IT department halfway by not doing anything that will hinder data backups, either. “It is important to keep users from removing files from the backup logic that prevent an effective backup from being taken,” Moyer says.

## Top Problem: Maintaining Security Software

According to Fred Pinkett, vice president of product management at Core Security Technologies ([www.coresecurity.com](http://www.coresecurity.com)), endpoint systems often have several endpoint security agents. “These can include antivirus, host IPS, encryption, DLP, policy enforcement, patching and configuration, etc.,” he says. “Endpoint systems are often intermittently connected, or end users install software that interferes with these agents. The security of the local client, as well as the network, can depend on these items to work well together.” He says solving this problem requires good management and monitoring practice, control of end-user privileges, and security systems that can tolerate connectivity issues.

Maintaining application patch levels can also be one of the last things on a data center manager’s mind. Pinkett says vendor patching and self updating sometimes fail to do the job, and often third-party patching products are required.

on the devices, but also limiting the user’s access to specific subnetworks, applications, or network domains.

### Secure Configurations In A Wired Network


In Pinkett’s opinion, endpoint system configuration is an important link in the security chain, as simple misconfigurations can easily open holes for hackers. He says for Windows-based systems, Microsoft’s group policy will often help, as well as standardizing configurations and verifying through auditing.

Lior Blik, CEO of NITConnect ([www.nitconnect.net](http://www.nitconnect.net)) says most wired network installations are very insecure. “To gain access to these networks, connect yourself and your client to a network port,” he says. “And to make it more difficult for this type of unauthorized access, a good practice might be to deploy port security, which identifies and limits MAC addresses

that can access the port.” Another option, Blik says, is 802.1x, which requires the client to authenticate before network access is granted.


### Lost Or Stolen Devices & User Behavior

When enterprises use a combination of active loss prevention, asset tracking, and encryption, they can be assured that confidential materials will remain safe, according to Blik. He says combining a variety of tools can provide different levels of security.

Additionally, Pinkett says users often access forbidden Web sites and open links or attachments in emails that they should not. He says this can easily result in malware being introduced or data leaking out of the company. “User security awareness training programs are a component of good security practice as well as limiting end user privileges on local systems,” Pinkett says, adding that testing users to verify their training keeps them on their toes. 

### No Monitoring

Maybe you have installed a system that sends data offsite three or four times per hour so that your enterprise’s data is continually mirrored. In the event of a massive-scale system failure or even if your enterprise itself is destroyed in a fire or another disaster, it is possible to have all of the data and applications restored in a matter of minutes. But after initially making sure that the backup system is up and running, have you been monitoring things to make sure the system is doing what it

“Many times, databases or applications have open files that backup software bypasses if they are in use.” The solution is to make sure that your software is able to overcome this all-too-common glitch. “It is important to create a schedule that shuts down applications or databases on a regular basis for ‘cold’ backups,” Moyer says. “Additionally, frequent backup transaction logs will allow for transactional recovery.” 

is supposed to do? Many admins do not, says John Matzek, co-chief executive officer of Logic IT Consulting ([www.logicitc.com](http://www.logicitc.com)).

“It is fairly common where a backup may fail and nobody realizes it,” Matzek says. “Sometimes backups will not work for a long time and nobody catches the problem until there’s a disaster.” Therefore, it is important to keep tabs on what is going on by using monitoring software, Matzek says.

### Incomplete Backups

It happens a lot: Files are open or in use and thus do not get backed up. “Another issue is to ensure that all of the files are included in the backup,” HP’s Moyer says.



### Sun To Cut 3,000 Jobs

Sun Microsystems said delays in its acquisition by Oracle will force it to lay off up to 3,000 employees, or about 10% of its workforce. Sun disclosed the planned job cuts, which are expected to take place over the next 12 months, in a filing with the Securities and Exchange Commission. Oracle announced plans to buy Sun in April. The \$7.4 billion deal was expected to close during the summer, but the acquisition has been delayed by European regulators. The layoffs will cost Sun \$75 million to \$125 million over the next several quarters.

### Finnish Government Mandates High-Speed Broadband Coverage

Broadband Internet usage in Finland will take a giant leap next July when that European nation’s Ministry of Transport and Communications requires the country’s telecommunications companies to provide coverage to all of its 5.2 million citizens. Government officials proclaimed broadband Internet access a legal right. The connections will run at least 1Mbps, with the goal of expanding that to 100Mbps by 2015. The United Nations is undergoing similar efforts to make Internet access a human right.

### Study Shows Collaboration Pays Dividends

Collaboration tools such as VoIP, HD teleconferencing, and instant messaging pay surprising dividends, according to a study sponsored by Cisco and Verizon and conducted by Frost & Sullivan. Coining the term “Return On Collaboration” as a descriptor of the benefits index of IP-based collaboration technologies, the survey of business and government agen-



cies shows that such tools gave organizations an average return of 4.2 times their investments and up to an ROC of 6.1 for the most advanced users. About 40% of current unified communications and collaboration users plan to expand their investments, the survey says.

### Office, SharePoint 2010 Public Betas Coming Soon

Microsoft CEO Steve Ballmer said the beta of Office 2010 will become publicly available this month. Speaking at the company’s SharePoint Conference in Las Vegas, Ballmer also said that SharePoint Server 2010’s public beta will be available in the same time period, with the final release appearing sometime in the first half of next year. The new collaboration platform integrates with Office 2010, Microsoft says, via features such as document lifecycle management, backstage integration, and social tagging.

### SCO President & CEO Fired

The leader of Unix software vendor SCO has been fired. After an operations and cost analysis, the company booted President and CEO Darl McBride. He had been the president and CEO of SCO since June 2002. Currently, the company is struggling through bankruptcy and a Unix copyright trial. SCO “has eliminated the chief executive officer and president positions and consequently terminated Darl McBride,” the company said in a statement with the Securities and Exchange Commission. The management team of SCO now consists of COO Jeff Hunsaker, CFO Ken Nielsen, and general counsel Ryan Tibbitts.



## Study: Most Enterprise Systems Are Windows 7-Ready

Recent analysis from Softchoice of 450,000-plus PCs in corporate use indicates that although 88% are able to support Windows 7's minimum requirements, a whopping 97% of corporate PCs are still running OSes that are approaching 10 years old or older—including Windows XP, which was first released in 2001. The survey results are based on inventory data Softchoice collected from November 2008 to August 2009 via 248 U.S. and Canadian organizations in the financial, health-care, manufacturing, and educational fields.

### An Easier Switch Than Vista

According to Softchoice, the readiness of PCs to run Windows 7 contrasts sharply with a previous study showing that, at the time of Windows Vista's release, only 50% of PCs could support Vista's minimum requirements. Dean Williams, Softchoice services development manager, explains that because the jump in system requirements from Windows XP to Vista was quite high, "at the time of Vista's release, even if organizations wanted to deploy it, many couldn't from a hardware readiness perspective." Throw in Vista's "complete code rewrite from Windows XP," Williams says, and some enterprises weren't comfortable making the switch. "Windows 7 is a much more incremental change from Windows Vista, and that fact, coupled with the fact that so many corporate PCs can now support the OS from a hardware standpoint, creates a much friendlier environment for the release of Windows 7."

Also encouraging for enterprises should be Softchoice's findings that 65% of corporate PCs can run Windows 7 at an optimal configuration. Conversely, only 6% of PCs were able to capitalize on the advanced features of Windows Vista at the time of its release, Softchoice says. Further, of the PCs that can't support an optimal Windows 7 configuration, the majority could do so following a hard drive or RAM upgrade. About 5% of current PCs would need to be completely replaced to move to Windows 7 vs. the 16% of PCs that needed replacing to move to Vista.

Currently, Softchoice says that about nine in 10 corporate PCs have WinXP installed, and a small percentage are running Win2000 and WinNT 4.0, both of which Microsoft no longer supports. Support for WinXP is expected to end by 2014. As for Vista, only about 3% of PCs analyzed had the OS installed. Williams says that although Softchoice is telling customers that "there's good news around the fact that hardware requirements won't be near the stumbling block they were with Vista," it's still vital for enterprises to know how many computers need to be upgraded, if they're entitled to Windows 7 through Microsoft's Software Assurance program, if they're "leaving any money on the table by not leveraging deployment incentives and training offered by Microsoft," and if they have the support resources needed to "ensure there are no headaches amongst users having to change the way they've done their work for the past eight to nine years."

by Blaine Flamig



# Clouds & Security

## Data Integrity Starts Before Implementation

by Carmi Levy

. . .

**DATA SECURITY ISN'T AS SIMPLE** as it once was. The accelerating trend toward cloud-based solutions isn't making it any easier. When organizational data lived on corporate servers within heavily firewalled corporate networks, securing it was a relatively straightforward, predictable process. As third-party cloud computing specialists increasingly partner with IT to manage ever larger components of a company's technology infrastructure, however, maintaining security becomes significantly more complex.

### A Question Of Control

This transition is already driving IT departments to rethink how they manage organizational data. That's because as corporate IT gives up absolute, day-to-day control over organizational data to services vendors, it needs to restate its accountabilities to limit liability and risk. "Because the data will now be under the cloud vendor's control and will live in a multitenant environment with other organizations' data, organizations must ask questions of the service provider to satisfy themselves that its security functions and controls match the enterprise policy

“Some data or applications should not go into a public cloud but should instead be kept in ‘internal cloud’ IT systems.”

- Burton Group's Dan Blum

requirements for the type of data going into the cloud," says Burton Group senior VP and principal analyst Dan Blum. Jack Gold, president and principal analyst of J.Gold Associates, concurs and advises IT decision-makers to engage in due diligence long before any cloud services provider is actively engaged. Both IT and the business should be comfortable with the vendor's internal data-handling processes. Specific areas to be examined include how the vendor handles break-ins, backup and recovery, data access monitoring, login tracking, and access tracking. "Don't assume anything," says Gold. "Check carefully with the hosting company and get the policies in writing as part of the contract. It's also a good idea to periodically check and/or monitor compliance with the company."

### Security Includes Business Continuity

A central part of these compliance verification efforts should involve assessing how the vendor ensures data availability. In the event of a server outage or a broken network connection, says Gold, IT will need assurances that the host has systems and processes in place to keep the business up and running.

### Key Points

- Do not proceed with transitioning data and systems into the cloud until the vendor assures IT that its security processes match or exceed those of the client organization.
- Data that cannot be easily repatriated is far from secure. Build data export accountabilities into all relevant service-level agreements and contracts.
- Partner with internal business areas to define what types of data can be moved into the cloud. In many cases, organizational sensitivities or regulatory requirements dictate that some information remains strictly on corporate infrastructure.

"Check to see if the hosting company actually has backups and failovers; not all of them do," says Gold. "Also make sure complete and up-to-date backups are being done so that if you have to switch to another host or even bring data back in house, you can do it easily and accurately." Once the appropriate service-level agreements and contracts are in place and

insurance against losing access to mission-critical systems or data.

### Look Into The Provider's Infrastructure

Gold recommends having a transition-specific backup plan in place to activate in case the hosting doesn't transition smoothly or meet expectations around data integrity, reliability, and availability. Data portability is a critical issue for all businesses. Before the advent of the cloud, vendor lock-in simply didn't apply to data. Now that information physically resides on a remote server controlled by a third party, being able to get it back—in both a timely manner and in a format that supports ongoing business operations—is critical to business continuity. "Organizations need to think about the possibility of switching vendors," says Blum. "How will they get their data out?"

Blum says serious issues can arise if companies fail to have an exit plan in place. He cites the experience of cloud vendor Coghead after it went out of business last year. Customers were notified they had 30 days to get their data out.

### Encrypt Everywhere

Unencrypted data, which is a potential weak point in any company's security infrastructure, represents an especially significant risk when data and related systems are hosted in the cloud. Blum says IT must challenge the vendor on its encryption processes. "If the data is sensitive, is it possible to encrypt it (both at rest and in motion) in the cloud?" asks Blum. "How is the data protected when it is in use?"

Protective measures shouldn't only focus on the cloud services vendor. Blum says it is essential for IT and business groups to agree on common rules of engagement for using the cloud. Both parties need to establish ground rules for risk assessment, contracts, policy, and audit criteria. "Some data or applications should not go into a public cloud but should instead be kept in 'internal cloud' IT systems," says Blum. "IT also needs to develop 'hybrid cloud' capabilities to manage and secure the organization's workloads, applications, and data in the public cloud. For example, an organization might use federated identity to broker logins to a public cloud so that only authorized users can get in and audit records." ■

### What's Next?

Although IT departments understandably focus on availability when they first move data and systems into the cloud, growing legislative requirements will force greater process maturity before long. "Service-level agreements need more meat around privacy and security. Right now, the providers are focusing on increasing their uptime commitments, but regulatory compliance, security, and privacy are going to be the next things the cloud-based vendors need to tackle in order to encourage enterprises to port mission-critical apps to the cloud," says J Schwan, managing and technology partner at Solstice Consulting ([www.solstice-consulting.com](http://www.solstice-consulting.com)).



by Nathan Lake

# Real-Time Protection From Cloud-Based Threats

WHILE THERE’S no doubt that cloud computing is appealing for many enterprises, experts have concerns about the ability of existing security solutions to protect data in the cloud. The Spyware & Web Firewall from XRoads Networks is designed to handle cloud-based threats, including real-time spyware blocking, antivirus, anti-malware, and Web-content filtering. And to keep the network running fast, XRoads Networks integrates its MSA (multisession acceleration) technology that speeds up Web-based downloads by utilizing the available throughput from multiple ISP links.

## Web Acceleration

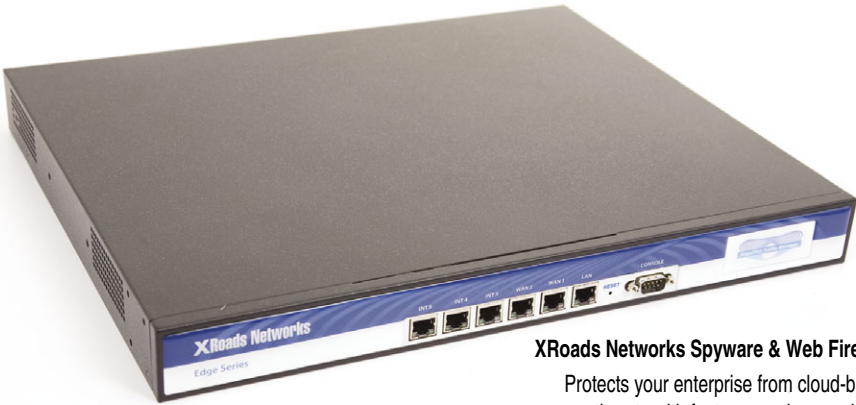
To quicken the delivery of applications, the Spyware & Web Firewall’s EdgeXOS features Web bonding technology that accomplishes speeds that you couldn’t reach with only link balancing. The MSA technology from XRoads Networks delivers reduced wait time for Web downloads of large files, such as ZIP, image, and CAD files, to be copied or backed up. For instance, it’s possible to combine two 1.5Mbps T1 lines to provide users with

3Mbps Web download speeds. Network administrators have the power to manage which types of files and applications can take advantage of the full bandwidth, which is ideal when you want to push out software and Windows updates or limit person-to-person file sharing.

## The Tools Of The Firewall

The Spy Sweeper filtering engine provides the real-time threat protection of the Spyware & Web Firewall, which is constantly updating its antivirus, antispysware, and antiphishing definitions.

According to Daren French, vice president of business development at XRoads Networks, “real-time security updates means zero-second protection for your enterprise.” French explains: “When a request is made from a user, we query the signature database in real time to ensure the best possible protection and, because of our Web acceleration, there is no security-to-speed trade-off. In fact, your Web download speeds will actually increase.” All Internet content is filtered through eight layers of checking, including looking



**XRoads Networks Spyware & Web Firewall**  
Protects your enterprise from cloud-based threats with features such as real-time spyware blocking, antivirus, anti-malware, and Web-content filtering.

for all types of malware and the custom rules and reporting of your enterprise.

Based on the redirect requests, IT administrators have a variety of information they can use to analyze and optimize the network. For example, with time-of-day and category controls, administrators can manage how Web access is granted during specific time periods. The Spyware & Web Firewall’s EdgeXOS includes a powerful rules engine. “We have extension access control and built-in graphical reporting capabilities, which can either be configured globally or on a per-user basis,” French says. From the keyword dashboard, you can view the most popular Web sites by category and search terms.

In terms of Web-content filtering, the EdgeXOS platform features two levels of filtering. First, workers are immediately

allowed or denied site access based on the rules you set up. The second filter accesses an intelligent filter engine to categorize the site and determine if it should be blocked. The platform also logs the sites and Web downloads users have tried to access, even if they were or weren’t allowed, and the log is kept for 90 days to let you generate historical information and metrics.

Spyware is fast becoming the top security threat for enterprises. “Unlike most viruses and worms, spyware is designed for one reason: to make a profit by stealing identity information, credit cards, Social Security numbers, and bank passwords,” French says. It is XRoads Networks’ goal to prevent that malware/spyware from infecting your organization and costing you and your employees both time and money.

(888) 997-6237  
www.xroadsnetworks.com



# Control, Secure & Manage Network Access

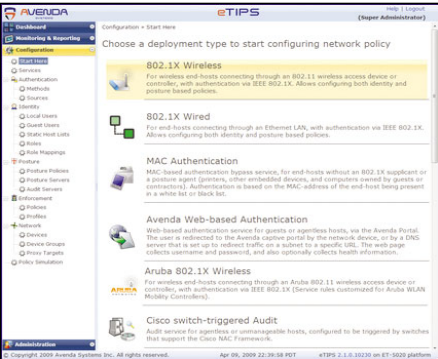
## Avenda Systems eTIPS 5000 Series For Identity-Aware Access Control

by Joanna Safford  
• • •

THE AVENDA SYSTEMS eTIPS platform delivers key elements to implement a network-wide access security solution—identity-aware policy management, end-

Optional health checks and remediation minimize vulnerabilities. Microsoft NAP endpoint assessment adds protection through antivirus, antispysware, and firewall checks and patch management and agentless vulnerability scans. A policy engine deploys preconfigured templates through a simulate-monitor-enforce system. The Web-oriented service interface conducts reporting, analysis, and granular data troubleshooting of access requests.

Avenda’s flexible architecture equips customers for a phased deployment for secure network access, ranging from guest access and differentiated employee access to endpoint control. The right level of identity-based control for your organization is achieved through a comprehensive and granular policy creation model.



point integrity checks, and usage monitoring and compliance reporting—within a single appliance. Employing differentiated and situational access, eTIPS 5000 Series utilizes identity-based access control to support AAA services, including 802.1X and MAC and Web authentication; device administrative management; and network device enforcement via RADIUS, TACACS, and SNMP. Built-in guest access portal offers visitor account creation tools, and visitor login and authentication options.



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by Marty Sems

## When You Need To Know *Now*

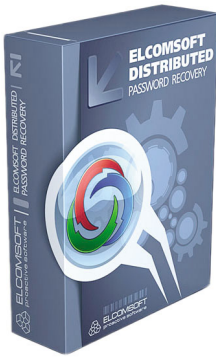
IN MANY CASES, time is of the essence. When a confiscated, encrypted laptop may be key evidence in a law enforcement or national security investigation, it’s imperative to use an accelerated password retrieval tool. Likewise, when your enterprise depends on determining whether its network’s passphrases are vulnerable, you’d like to verify that fact sooner rather than later.

From digital forensics to security auditing, on down to the intern who accidentally logged out the wrong console, Elcomsoft’s Distributed Password Recovery can play a role. It uses a variety of technologies to produce a forgotten login or find a chink in the network armor in as short an amount of time as the Russian developer can manage.

As its name implies, the software can make use of distributed computing to bring multiplied processing horsepower to bear on a problem. Elcomsoft says that DPR can scale with extremely little overhead to more than 10,000 workstations in a cluster. If your organization has the resources, the company says, Distributed Password Recovery can harness it.

In addition, the software can tap the huge parallel processing prowess of recent graphics cards to aid it in its tasks. Using Nvidia’s CUDA and AMD’s

Stream technologies for GPU acceleration, DPR has been shown to crack a Windows login password at least 12 times faster than with CPU number-crunching alone, according to Elcomsoft. Some of DPR’s speed is based on an understanding of human nature, rather than technological advances. For instance, because a recent Elcomsoft



**Elcomsoft Distributed Password Recovery**  
For massively accelerated password retrieval and security testing.  
Starts at \$599

Elcomsoft’s DPR leverages CUDA, Stream, distributed computing, and smart dictionary skills to crack passwords in record time.

survey revealed that more than three-quarters of respondents use the same password to access different files or system assets, DPR tries a list of previously cracked passwords before any others. The software can also use multiple dictionaries added and edited by the user, as many passwords can be found in a dictionary of a particular language.



www.elcomsoft.com



FEATURED COMPANY

# Manage Your Risk

Pentura’s Services & Solutions Help SMEs Secure & Protect Their Data From Harm

by Robyn Weisman

SINCE 2002, UK-based risk management service provider Pentura has provided IT security and data protection solutions to enterprises. Steve Smith, managing director of Pentura, founded the company to bring new technologies into the IT security marketplace, an area he believes had been largely overlooked by traditional resellers. “We felt customers would benefit from exposure to new solutions developed to address the very latest threats,” Smith says. Smith has spent more than 17 years working in IT security at several companies, including management positions at Smiths Industries Aerospace & Defence and Quza, which was purchased by Global

long-term strategies to secure their IT networks. “We believe in developing long-term relationships with [our] customers through offering a flexible engagement and ‘going the extra mile,’” says Smith. As a result, Pentura provides expertise to a wide swath of companies, including BT (formerly British Telecom) and UK convenience store chain Somerfield. “By looking at the challenges from technical and management perspectives, we are able to deliver services and solutions in line with what the business needs, rather than just delivering point products,” Smith adds. Pentura researches and chooses its partners based on their ability to offer Pentura’s clients best-of-breed solutions. The firm actively works with IBM, Blue Coat

Pentura offers several services that fall under the risk assessment umbrella, including vulnerability risk assessment, data risk assessment, firewall risk assessment, and intrusion detection and prevention assessments. Pentura delivers these services by leveraging the expertise of its consultants and ultimately finding the right combination of technologies that will lead to a solution, says Smith. Smith points out that many of Pentura’s clients that have IDS (intrusion detection system) or IPS (intrusion protection system) deployments experience an overwhelming number of alarms, which he says can lead them to tune their policies down so far that they are no longer producing helpful information.



Crossing. He was also a founding director at Centurycor, a successful UK-based IT security integrator purchased by Diagonal, an international SAP consultancy, in January 2000. After spending so many years working to achieve other companies’ goals, Smith wanted to bring his own style and leadership qualities to a new venture. “Together with like-minded colleagues, we had the key objective to expose our customers to the very latest security solutions addressing today’s threats and to ensure customers enjoy a first-rate service from an organization willing to go the extra mile,” Smith explains.

### Understanding What Organizations Need

According to Smith, Pentura (www.pentura.com) prides itself in discerning the ways in which business systems and processes work so that it can then advise organizations on what they will need to best identify and then manage any potential risks to their information assets. “We differentiate ourselves by our understanding of not only the nuts-and-bolts aspects of technology but by also aligning ourselves to key business operations,” Smith says. “We deliver value at the highest level as we are continuously looking at how core business issues impact the management of IT security.” As a leading risk management solutions provider, Pentura seeks to find its clients

Systems, Checkpoint Systems, Skybox Security, and Websense, among others.

### Risk Assessment & Intrusion Prevention Experts

Pentura’s expertise really shines in its Risk Assessment Services offerings, which provide clients with granular insight into both internal and external threats to their data and to their enterprise networks. “By measuring the risks associated to business-critical services and assets, we provide visibility of these top vulnerabilities and plan delivery of prioritized remediation,” says Smith.

Pentura’s IT security consultants have years of experience deploying and managing IDS and IPS implementations and fully understand the process involved in doing so, says Smith. Pentura offers a comanaged service called LANSweeper that gives users control over their security systems while working closely with Pentura to continuously assess risk and implement, optimize, monitor, and maintain security. “The service delivers comprehensive identification and analysis of security events that require immediate action, thereby preventing costly downtime and potential loss of revenue,” Smith says.

## Pentura Featured Services

Service	Description
Data Risk Assessment Service	Identifies and makes visible risks in business-critical data and implements a data security strategy that removes unnecessary permissions from data.
Endpoint Information Assets Solutions	Reviews existing end points within a network and tailors a solution that provides real-time visibility and data protection strategies to these end points.
AirSweeper Managed Wireless Security Service	Provides 24/7 real-time monitoring, protection, escalation, and response processes for securing wireless networks.
Application Penetration Testing	Identifies vulnerabilities in network Web applications and provides strategies for thwarting these threats.

### How To Measure & Control The Risks

According to Smith, Pentura does not recommend, let alone deploy, any solution until it has detailed and shown what those risks happen to be. Recently, the company advised BT on the best solution for securing its wireless infrastructure. This required Pentura to help BT find a framework that could automate intruder detection capabilities, offer visibility into vulnerable access points, and provide a means to enforce these policies across its mobile workforce without hampering the company’s business. Moreover, this solution had to work with a Cisco-based network infrastructure. Smith says that helping clients pinpoint their needs helps his company determine existing solutions’ effectiveness and aids Pentura in developing tailored risk management solutions. And Pentura does independent research on a significant number of security-related products, giving it the insight of current technologies and solutions.

### PENTURA

- +44 (0) 118 976 8960**  
**www.pentura.com**
- Pentura specializes in risk assessment and management services and solutions for enterprises of any size.
  - The company works to ensure that its customers end up with solutions that best fit their individual needs.
  - “By measuring the risks associated to business-critical services and assets, we provide visibility of these top vulnerabilities and plan delivery of prioritized remediation,” says Steve Smith, founder and managing director of Pentura.

“Only when a requirement definition is in place do we engage relevant partners that we have identified as best of breed,” Smith points out. “We provide visibility of the actual business risk imposed by vulnerabilities and network access exposure to internal, external, and B2B threats, and this visibility allows us to deploy the most appropriate technology using a prioritized, methodical, and [cost-effective] approach to secure platform and sensitive data.”

### Working On Both Sides Of The Pond

Although Pentura is a UK-based company, it has a U.S. office in New York and offers its services to American organizations, as well. Smith says that Pentura has captained a number of global technology deployments. “We work with these companies to pull together the relevant resources in the timescales required and then deliver projects in line with regional compliance based on individual country regulations,” he says. In addition, Pentura provides its Penetration Testing Services to U.S.-based enterprises. According to Smith, Pentura has specialized in this type of testing for many years, deploying the same tools and techniques that a malicious attacker would use and providing complimentary retests to make sure that all of the discovered vulnerabilities have been secured. Smith notes that Pentura is accredited as a member of Britain’s National Technical Authority for Information Assurance, or CESA (www.cesa.gov.uk). Moreover, every member of the company’s penetration testing staff holds a CEH (Certified Ethical Hacker) certification from the International Council of Electronic Commerce Consultants (www.eccouncil.org).



SECURITY

FEATURED PRODUCT

# Powerful Exchange Security Without The Fuss

## Sunbelt Software Provides Layered Approach To Securing Exchange Messaging

by Joseph Pasquini

JUST ABOUT ALL organizations consider their internal message services to be core strategic resources. In today’s world of instant electronic communications, the loss of email services for even just a few minutes will rapidly grind most enterprises to a sudden halt. It should therefore come as no surprise that securing messaging services from both internal and external threats is a critical task for any email administrator.

To help small and medium-sized organizations more effectively secure their Microsoft Exchange implementations, Sunbelt Software developed VIPRE Email Security for Exchange ([www.sunbeltsoftware.com](http://www.sunbeltsoftware.com)). Sunbelt Software was founded in 1994 and is a leading provider of a complete product lineup of enterprise and desktop Windows security software, including antivirus, antispymware, email security, and malware analysis tools.

### Multilayered Security

VIPRE for Exchange is a policy-based email security product offering several layers of protection against viruses, phishing,

### SUNBELT VIPRE EMAIL SECURITY FOR EXCHANGE

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[www.sunbeltsoftware.com](http://www.sunbeltsoftware.com)

**Description:** Third-generation email security product for Microsoft Exchange environments that offers layered policy-based protection and a combination of antivirus, antispymware, and other anti-malware capabilities into a seamless product.

**Interesting Fact:** VIPRE stands for Virus Intrusion Protection Remediation Engine.

spam, and other similar messaging threats. By leveraging the scanning engines found within Sunbelt Software’s endpoint product lineup, VIPRE combines several threat detection capabilities into a distinct system capable of inspecting, cleansing, and managing Exchange email services.

According to Michelle Dillard, product manager for Sunbelt Software, VIPRE creates a significant product differentiator for the Clearwater, Fla.-based technology company.

“We’ve taken the best of our Ninja Email Security product, revamped it, and added the VIPRE antivirus engine to create a comprehensive solution that minimizes impact on the Exchange server and reduces the administration effort by the IT staff,” says Dillard. “This combination of technologies ensures that our customers are fully protected with minimal impact on server resources.”

“There are a number of elements of VIPRE Email Security for Exchange that

make it unique, including multiple scanning engines as well as close integration with Exchange Server,” adds Phil Owens, sales engineer for Sunbelt Software. “Because of the tight integration with Exchange, it also means that users do not need to leave Outlook to use our product (create allow or block lists or check their spam messages).”

For its antispam capabilities, VIPRE incorporates the Cloudmark antispam engine and Sunbelt’s own antispam engine. Support for RBLs (real-time blackhole lists) is also included. Administrators may supplement the embedded spam detection with a variety of rules created to flag a number of email message properties, such as body, sender IP, header, or subject. VIPRE can also be configured to strip out HTML coding prior to scanning and to look for words or phrases appearing multiple times within a single email.

### SMART Technology

Unlike traditional messaging security solutions that filter at the gateway, VIPRE for Exchange instead utilizes a policy-based filter referred to by Sunbelt as SMART (Suspicious Mail Attachment Removal Technology).

“There are a number of email security solutions that work with Exchange, but VIPRE differs in that it doesn’t just sit on top of Exchange,” says Owens. “It is tightly integrated, which allows for more complete server-level inspection of both in- and outbound traffic. This is a significant advantage over gateway solutions that only have one shot at inspecting the traffic.”

Using SMART, all attachments are filtered based on the direction of the associated message—inbound, outbound, or internal



Sunbelt Software

within the organization. Rather than relying upon the file extensions, VIPRE analyzes attachments at the structure level in order to determine their true native identities. As a result, the security software is able to defend against zero-day exploits often seen with intentionally misnamed file types.

“Our approach and tight integration with Exchange’s message flow allows filtering between users and enables multiple opportu-

nities for detection prior to network infection,” says Owens.

### MX-Virtualization

MX-Virtualization, or MX-V, technology, which is integrated directly into VIPRE for Exchange, provides a compact and high-speed virtualized Windows environment for the rapid execution and analysis of potential malware. According to Owens, the MX-V technology used by VIPRE reduces reliance upon basic signatures in favor of a more thorough analysis of behavioral characteristics.

“This isn’t your father’s email solution,” says Owens. “Yesterday’s old signature-based email security solutions are not up to the challenge presented by today’s hackers and sophisticated cyber-criminals. Cyber attacks are ever-evolving, and so too should your protection.”

Dillard adds that the MX-V technology is one element of VIPRE that no other competing product on the market has yet to offer. “What is amazing is that the performance impact on the Exchange Server is virtually unnoticeable; MX-V uses so little computing power that the admin isn’t even aware it’s running,” Dillard says.

### Set It & Forget It

Designed as a Microsoft MMC snap-in, VIPRE’s management console enables administrators to install, configure, and manage email security from one central location. Thanks to its policy-based methodology and integrated plug-in management, VIPRE lets administrators granularly configure security for individual users as well as for groups of users. Policy-level exceptions for outbound and inbound traffic can also be set as necessary. In addition, all processing occurs server side rather than at end users’ workstations. Because no client software is required, the typical administrative burdens associated with client-based installations are alleviated.

VIPRE’s reporting engine lets administrators generate reports at the system, group, and user levels. Reporting options include the number of mail scanned, the number of spam flagged or deleted, the number of intercepted viruses, and the number of triggered filters.

“We pride ourselves on the fact that Sunbelt’s VIPRE Email Security for Exchange has been designed with both users and administrators in mind,” says Dillard. “Data center staff, IT managers, and security staff need to know that email security doesn’t need to be hard to manage.”

As the saying goes, no news is sometimes good news. Such is the case when it comes to VIPRE administration. “It is a compliment to call on a customer and hear them say that they haven’t thought about us since they purchased the product,” says Dillard. “That means that our product is doing its job and allowing overburdened IT staff to do their job, too.”

## Report Shows Open-Source Quality Improving

The overall quality and integrity of open-source software is getting better. That’s according to Coverity, a provider of software integrity analysis products, which recently released its 2009 Coverity Scan Open Source Report that examines the quality of open-source code. For the study, Coverity analyzed more than 11 billion lines of open-source code from 280 open-source projects over the past three years.

“The results of the study should help businesses understand how to recognize which open-source projects take quality and security to heart and keep the focus on maintaining as [much] software integrity as they can,” says David Maxwell, Coverity open-source strategist and scan program director. “That is important because no matter who wrote the code, if you ship it to an end user as part of a commercial product, that user will expect you to support it.”

### Open-Source Progress

One of the major highlights in the report’s findings was a 16% decrease in static analysis defect density, or how many flaws were found in the open-source projects studied. The report says that since 2006, more than 11,200 defects have been removed from open-source projects and that the most common types of defects, including NULL pointers, resource leaks, and unintentional ignored expressions, are remaining consistent.

The report is backed by Coverity’s Static Analysis product and offers an opportunity to inspect the coding from several popular open-source packages such as Firefox, Linux, PHP, and Samba. In addition to an increase in quality and security, open-source projects are receiving higher certification on the Coverity Integrity Rungs scale. According to Maxwell, the rungs are a way to determine which projects need to receive upgrades.

“Over time, Coverity develops new versions of its Static Analysis tools, and we knew that scan projects should get access to the newer analysis engines over time,” he says. “In order to prioritize which projects receive upgrades first, we defined the scan ladder so that it would be clear what stage (rung) each project was on, and what the criteria were for achieving the next rung.” In the newest report, the number of Rung 1 projects increased 32% from 2008.

by Kris Glaser Brambila





HOW TO

# Recover Lost Email

Keep Email Pinpointed So It Doesn't Get Lost

by Curt Harler

. . .

ANY GOOD OUTDOORS person will tell you that the best way to not get lost in the woods is to know where you are at each step of your trip. The same is true with tracking email. If you have a good trail set up, and you map the location of each document type, the challenge of recovering a lost document is much easier.

### Starting Out

"If you only have one copy of your data, then one day you may have no data at all," says James Dean, senior Exchange engineer at AppRiver ([www.appriver.com](http://www.appriver.com)). He maintains that IT shops—big and small—must make sure they have a well-planned and well-tested backup and restore system. This is not a place to cut corners, he emphasizes. "You should spend as much time as necessary planning your backup and messaging systems."

Todd Yamasaki, an analyst who covers disaster recovery for email at The Radicati Group, agrees. "Every business should take a proactive approach when planning their backup and recovery strategy. This means addressing and identifying potential problems or situations that may arise and then mapping out a game plan."

Dean emphasizes that quickness in reporting the loss of email is important. Most enterprises do not keep backups or a record of deleted items beyond 30 days. He says that users should regularly be reminded that, once they notice they are missing something, it is vital they contact their IT administrator or help desk right away.

He notes that data restoration can be quite costly. "It is wise to plan for the added hardware and software costs." Backup vendors normally license their products at a per-mailbox or per-server level.

Yamasaki notes that recovery of individual emails is a small portion of the whole concept of disaster recovery for email.

There is a growing trend to reduce tape backup media because SMEs find disk-to-disk backup solutions more cost-effective. "When choosing what is best for your organization, it is important to keep in mind the ability to restore," Dean says. For instance, if an SME has a disk-to-disk backup system in the same location as its primary messaging system, then the firm risks losing

### Key Points

- End users should report a lost email as soon as they notice it's missing.
- Use the tools available to you, such as Microsoft Exchange DIR (Deleted Item Retention).
- Keep backups at an alternate location so you know they are safe and won't be affected if something happens onsite.

everything in the event of a fire or any other disaster directly affecting the location.

"That's why keeping disk-to-disk backup systems at an alternate location is a good idea," Dean says. "If you don't have the network bandwidth to handle backups, then offsite tape rotation may be a good choice."

### Hansel & Gretel Theory

Just as Hansel and Gretel dropped crumbs behind them so they could find their way home, so, too, there are trails one can leave to help keep email from going too far astray.

"Having good information on hand is critical when it comes to lost data," Dean

"If you only have one copy of your data, then one day you may have no data at all."

- AppRiver's James Dean

says. The IT tech charged with recovering the lost email should ask as many questions as possible in order to get a complete picture of what went on and what the worker is searching for.

To speed recovery, Dean says the user needs to provide specific information about the incident:

- Was the loss due to something you did? If so, what was that action and when did you do it?
- If you don't believe you did anything, when was the last time you knew the data was there?
- What day did you receive or send the message?
- What was the subject of the message?

There are a number of solutions that can be deployed depending on the needs of the

business, Yamasaki says. For an SME, a hosted recovery solution is often a popular pick due to the low maintenance costs and outsourcing of hardware and servers.

"Some of the hosted recovery solutions may be a bit too comprehensive if the only goal of a business is to deploy a solution that will simply restore deleted emails," Yamasaki continues, noting that many of the recovery solutions are aimed at enterprises looking to back up their entire email servers and have them available for an instant restoration in case of a disaster, such as a power failure or natural disaster, for example.

Dean says it is best to have a VSS (Volume Shadow Service) backup system. With a VSS backup system, he explains, an SME can take several snapshots of databases (from intervals as short as every 15 minutes) to increase the chance that no message gets missed by your backup program.

In addition, IT should know what types of clients are being used and should have working knowledge of them. "This will accelerate the information gathering process as it relates to the loss of data," he says. As a vendor, he stays attuned to what SMEs are using and is also aware of changing technology trends. He says SMEs should do no less. Their system allows them to recover lost email, regardless of the reason.

### Recovery Solutions

Yamasaki's definition of disaster recovery includes all of the products and services that back up and recover corporate email servers in the event of system failure or disaster. "Email DR solutions provide comprehensive protection against data loss until email servers are brought back online," he says.

Dean says that SMEs using Microsoft Exchange should consider their first line of

defense to be DIR (Deleted Item Retention). Using a Registry key add-in for Outlook, IT administrators can access that DIR for any folder in a mailbox. If the data was removed or deleted within the DIR date, it can easily be put back into the mailbox.

"Beware, though; if you're using Exchange 2007 or older, then users can purge that DIR permanently," Dean says, adding that Exchange 2010 has made great changes to DIR that removes those options as well as other single item-type recovery changes.

If your organization uses Microsoft Exchange 2007 or earlier, then you can add a Registry key to your Outlook client to view folder level DIR, Dean says. Also, PFDAVAdmin is a great way to open mailboxes and recover data from the DIR.

"When it comes time to get the data back, never trust anything without testing and retesting," Dean says. Doing a dry run of restore procedures (to see if you can recover a database or individual messages) every month—at least—is a good idea. It is better to spend that hour or so a month testing procedures than finding yourself in the hot seat for not being able to recover an important email.

If a user has destroyed the trail of breadcrumbs left by Exchange, which can happen, then IT must resort to the backup to find missing messages. Thus, having a restore-friendly application is a real bonus. "Either way," Dean says, "make sure to check the restore options with any product you're considering before you buy it." ■

### AMD Reports Slimmer Losses In Q3

Chip maker AMD announced third-quarter sales that were higher than expected, although it posted a net loss of \$128 million for the quarter. Although this marks AMD's 12th consecutive loss, the margin is slimmer than losses in previous quarters. The company's revenue, on the other hand, was up 18% over the previous quarter, climbing from \$1.18 billion in the second quarter to \$1.4 billion in Q3. Revenues beat analysts' expectations, which the company attributes to increased notebook sales in the back-to-school season and a strong showing in China. AMD is predicting modest increases in revenue for the fourth quarter.

### Google Posts Strong Third Quarter

Internet search giant Google broke records in the third quarter, posting its highest profits ever in its 11-year history. The company's net income shot up 27% from the same quarter last year; Google earned \$1.64 billion, or \$5.13 per share, in the third quarter of this year compared to \$1.29 billion in Q3 2008. The company posted revenue of \$5.94 billion, beating analysts' expectations and representing a 7% growth over the same time last year. About 53% of revenues came from countries outside the United States. Google is optimistic about its results, claiming that the worst of the recession is now in the past and that it plans to begin investing again.

### Couple Arrested For Stealing \$23 Million From Cisco

A married couple has been charged with stealing more than \$23 million from Cisco. The FBI arrested Mario Easevoli and his wife, Jennifer Leigh Harmon Easevoli, president and vice president of Synergy Communications, respectively. A third man, Jason Allan Conway, is also being charged, but he has yet to be arrested. The suspects allegedly submitted claims to Cisco's Smart-net program to request new parts for broken hardware, then sold the parts in the gray market and deposited the profits into an account registered to Synergy. The Easevolis allegedly created more than 21 false companies and 80 false personal names and obtained private mailboxes at UPS stores in eight states, where they had Cisco's replacement parts shipped.



### Global PC Market Sees Growth

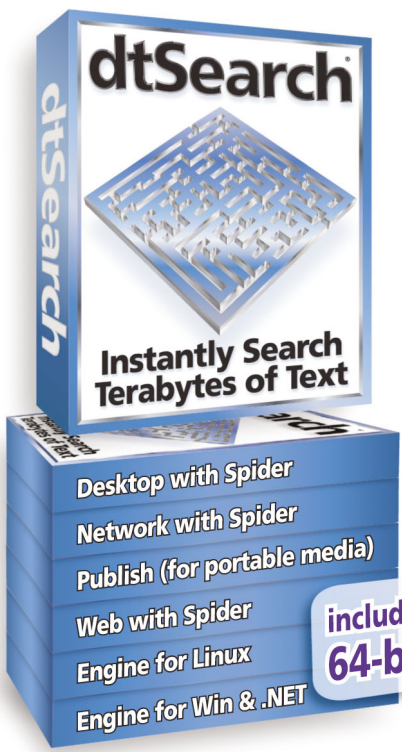
According to analyst firm Gartner, the global PC market has seen growth over the past year because of increased demand for mobile PCs. In the third quarter, PC shipments increased 0.5% to reach 80.9 million units. Among PC manufacturers, HP was the top seller, followed by Acer, which increased its sales 23.6% to reach 12.5 million units. Dell's shipments, on the other hand, decreased 6.7% compared to last year, down to 10.3 million units. According to Gartner, Dell's drop is the result of the company's emphasis on profit protection. Gartner also says it doesn't believe PC shipments will significantly increase with the release of Windows 7.

## TOP TIPS

- Get end-user buy-in for fast response. The sooner you know about missing data, the easier it is to recover it. You should also be prepared to ask users specific questions about the missing email, as this will provide the basis of how you will go about recovering it.
- Stay attuned to changing technology trends so you will know how to go about recovering missing data.
- PFDAVAdmin is a great way to open mailboxes and recover data from the DIR (Deleted Item Retention). According to James Dean, "DIR stores all data deleted from the mailbox for a set number of days."
- Test the recovery system regularly, as you never know when you might need to use it. Testing also makes sure IT administrators know how the process works should the need to recover anything for end users arise.



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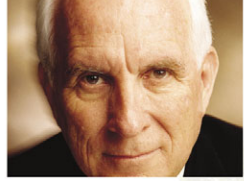
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# Rackmount Servers



## Silicon Mechanics Rackform iServ R109

The Rackform iServ R109 is designed to bring processing power and energy efficiency to the entry-level server. This 1U server features an Intel Xeon 3400 series processor (“Nehalem” architecture), up to 32GB of registered ECC DDR3 RAM, a PCI-E expansion slot, dual Gigabit Ethernet adapters, one fixed SATA drive, and a high-efficiency power supply.

- 1U single-socket Intel Xeon 3400-based rackmount server
- Six DDR3 DIMM sockets
- One fixed SATA drive
- One PCI-E expansion slot
- Intel 3420 chipset
- 200W low-noise, high-efficiency AC/DC power supply with PFC

**Best For:** Data centers looking for entry-level rackmount servers with advanced platforms and increased power efficiency.

**Price:** Starts at \$928

(866) 352-1173 | [www.siliconmechanics.com](http://www.siliconmechanics.com)



## Silicon Mechanics Rackform iServ R335

The Rackform iServ R335 is a dense, energy-efficient 1U server with redundant power, making it ideal for space-constrained, mission-critical deployments. This dual-socket server is built on the latest Intel Xeon processor technology. In 1U of rack space, the R335 has eight hot-swap 2.5-inch drive bays, 12 DDR3 DIMM slots, an integrated dual-port Gigabit Ethernet adapter, integrated IPMI and KVM with dedicated LAN, two PCI-E expansion slots, and an optical drive.

- 1U dual-socket Intel Xeon 5500-based rackmount server
- 12 DDR3 DIMM sockets
- Eight hot-swap 2.5-inch drive bays
- Two PCI-E expansion slots
- Two Intel Xeon 5500 series processors
- Intel Hyper-Threading, Quickpath Interconnect, and Turbo boost

**Best For:** Enterprises that need to beef up with the latest processing technology on a single rack unit.

**Price:** Starts at \$2,791

(866) 352-1173 | [www.siliconmechanics.com](http://www.siliconmechanics.com)



## Silicon Mechanics Rackform iServ R4410

The Rackform iServ R4410 2U 4-node server supports four swappable, full-featured nodes in a 2U chassis with a redundant power supply. Each node is equipped with two Intel Xeon 5500 series processors, 12 DDR3 DIMM slots, three hot-swap SATA drives, a dual-port integrated Gigabit Ethernet adapter, integrated IPMI and KVM with dedicated LAN, and a low-profile PCI-E expansion slot. Also available with integrated InfiniBand (the R4410-IB), this server offers high density and redundant power, making it ideal for high-performance computing.

- 2U 4-node Intel Xeon 5500-based rackmount server
- Each node includes 12 DDR3 DIMM sockets, three hot-swap SATA drive bays, and one low-profile PCI-E expansion slot
- ACPI/ACPM power management
- Intel ICH10F SATA 3.0Gbps controller
- Support for Intelligent Platform Management Interface v2.0
- Matrox G200eW graphics

**Best For:** Data centers that require increased density and redundant power.

**Price:** Starts at \$7,347

(866) 352-1173 | [www.siliconmechanics.com](http://www.siliconmechanics.com)



## HP ProLiant DL360 G6

The HP ProLiant DL360 G6 server delivers twice the performance at half the power providing a high-performance computing option for value-minded SMEs. Combining the latest Intel Xeon 5500 processor technology with power-optimizing technologies such as HP Thermal Logic, the HP ProLiant DL360 G6 delivers high performance at a low price.

- Complies with Energy Star specifications for computer servers version 1.0
- Delivers high performance and power efficiency with Intel Xeon 5500 series processors
- Optimizes power and thermal management through “Sea of Sensors” feature and HP Thermal Logic technology
- Reclaims lost data center power and cooling with HP Insight Control and Dynamic Power Capping, which enables customers to cap the server’s power use while increasing workload capacity

**Best For:** Data centers and service providers that need support for both centralized and remote environments in small to medium-sized enterprises.

**Price:** Starts at \$1,899

(800) 888-0262 | [www.hp.com](http://www.hp.com)



## HP ProLiant DL370 G6

The HP ProLiant DL370 G6 server delivers more than twice the performance compared to previous generations, allowing SMEs to enhance data center efficiency and get the best return for their budgets. A combination of Intel Xeon 5500 series processor technology and power-optimizing technologies lets the HP ProLiant DL370 G6 deliver high performance at a low price.

- Optimizes power and thermal management via HP Thermal Logic technology
- Reclaims lost data center power and cooling with HP Insight Control and Dynamic Power Capping, which enables customers to cap the server’s power use while increasing workload capacity
- ICE (Insight Control) for infrastructure management and enhanced server deployment
- Power Regulator and Power Meter for power monitoring and server diagnostics

**Best For:** Environments such as corporate workgroups, critical remote sites, and expanding businesses that demand more storage and operability.

**Price:** Starts at \$2,959

(800) 888-0262 | [www.hp.com](http://www.hp.com)



## HP ProLiant DL380 G6

The HP ProLiant DL380 G6 server delivers increased flexibility, enterprise-class uptime, and increased performance that meets a wide range of deployment needs for growing SMEs. The DL380 G6 uses the latest Intel Xeon 5500 processor technology and the company’s own power-optimizing technologies to deliver high-end performance at an affordable price for SMEs.

- Complies with Energy Star specifications for computer servers version 1.0
- Equipped to support more virtual machines, users, and transactions with embedded RAID capability and twice the memory, storage, and network adapters of the previous generation
- HP Thermal Logic technology and “Sea of Sensors” feature optimize power and thermal management
- HP Insight Control and Dynamic Power Capping enables customers to reclaim lost power and cooling and cap the server’s power use while increasing workload capacity

**Best For:** IT environments in the SME where flexibility and space considerations are important.

**Price:** Starts at \$2,099

(800) 888-0262 | [www.hp.com](http://www.hp.com)



Processor’s Product Spotlight highlights options available in key data center product categories, providing product information side-by-side for easy comparison.

Compiled by Joanna Safford



### Verari RM1257

This 1U system offers a solution for today’s Web 2.0 applications, such as software-as-a-service and Web hosting companies, where virtualization of resources is a key factor in their ROI. The Verari RM1257 is also VMware-certified.

- Two quad-core Intel Xeon 5400 series processors
- Up to 64GB DDR2-800 RAM
- VMware ESX Server-certified
- Up to 1.3TB of internal SAS storage
- Four Gigabit Ethernet ports
- Intel I/O Acceleration Technology
- Optional dual-port Fibre Channel HBA

**Best For:** Enterprises looking to expand rackmount options without crunching the IT budget.

(888) 942-3800 | [www.verari.com](http://www.verari.com)



### Verari RM1315

This 1U system is a two-in-one solution that features two separate 2-socket systems per chassis. With faster processors, DDR3 DIMM modules, and Intel virtualization technology, the RM1315 is an ideal solution for a full range of memory- and compute-intensive applications.

- Two nodes per 1U chassis
- Two quad-core Intel Xeon 5500 series processors
- Up to 96GB DDR3 memory per node
- Intel QuickPath Interconnect
- Two Gigabit Ethernet ports
- Optional KVM-IP management

**Best For:** Optimizing a network environment to supply increased management efficiency.

(888) 942-3800 | [www.verari.com](http://www.verari.com)



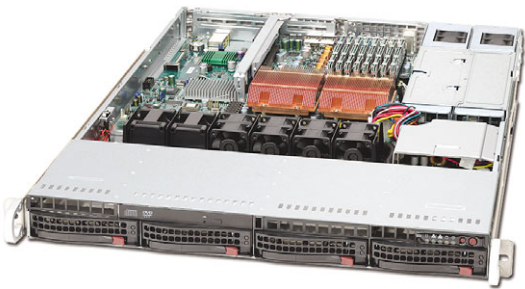
### Verari RM2242

This high-performance, VMware ESX-certified 2U server addresses the infrastructure optimization and business continuity areas. With the RM2242 server and the latest virtualization applications, customers can now decrease their TCO even further.

- Six-core Intel Xeon 7400 series processors
- Up to 192GB ECC memory
- VMware ESX 3.5-certified
- Intel I/O Acceleration Technology 2 and 64MB snoop filter
- Up to six SAS hard drives
- Six Gigabit Ethernet ports

**Best For:** Companies with server configurations in constrained spaces.

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### Aberdeen Stirling 123

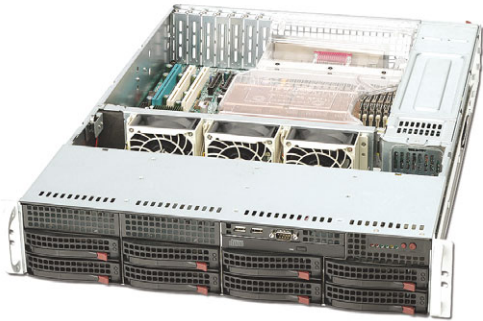
Stirling 1U servers deliver improved operational efficiency within a dynamic VMware environment.

- Supports up to two quad-core Intel Xeon processors
- Up to 32GB of 667MHz FB-DIMM DDR2 memory
- Up to four hot-swap SATA or SAS hard drives
- Preinstalled VMware ESXi on disk-on-module
- 650W redundant power supply
- Five-year warranty

**Best For:** VMware-centric companies of any size seeking to maximize ROI and increase performance.

**Price:** Starts at \$1,845

(800) 500-9526 | [www.aberdeeninc.com](http://www.aberdeeninc.com)



### Aberdeen Stirling 269

The VMware-certified Aberdeen Stirling 269 offers SMEs a lower cost of ownership while eliminating concerns of compatibility complications.

- Supports up to two quad-core Intel Xeon processors
- Up to 144GB of 1,333MHz DDR3 memory
- Up to eight hot-swap SATA or SAS hard drives
- Preinstalled VMware ESXi on disk-on-module
- 720W redundant power supply

**Best For:** VMware-centric enterprises of any size looking for a robust, feature-rich server to affordably deliver performance.

**Price:** Starts at \$2,095

(800) 500-9526 | [www.aberdeeninc.com](http://www.aberdeeninc.com)



### IBM System x3550 M2

With the IBM System x3550 M2, you’re getting proven technology in an energy-smart design. Support for quad-core computing with Intel Xeon 5500 series processors means the x3550 offers significant performance advantages. The x3550 M2 servers feature an Integrated Management Module that continuously monitors the system, notifying users of potential failures or problems. Advanced power monitoring is available through IBM Systems Director Active Energy Manager.

- 1U chassis
- Energy-efficient design
- Up to 128GB of DDR3 RAM
- Up to six 2.5-inch hot-swap hard drive bays
- Support for the VMware ESXi 3.5 embedded hypervisor

**Best For:** Any enterprise in need of a server to accommodate applications such as e-business, collaboration, and virtualization.

(800) 426-4968 | [www.ibm.com](http://www.ibm.com)



### Dell PowerEdge R710 Rack Server

With an interactive LCD for system health monitoring, alerting, and temperature monitoring, the Dell PowerEdge R710 features Intel VT FlexMigration to integrate multiple generations of Intel Xeon processor-based servers. The next-generation Dell OpenManage suite provides simplified command management for effective control, and the Lifecycle Controller performs provisioning tasks through the USC (Unified Server Configurator). To add to the virtual infrastructure, the DMC (Dell Management Console) operates on the Symantec Management Platform, utilizing a modular platform for asset, hardware, and security management.

- Support for tool-less installation in 19-inch EIA-310-E-compliant square or unthreaded round holes
- Supports up to two quad-core or dual-core Intel Xeon 5500 series processors
- Optional embedded hypervisor for Citrix XenServer, Microsoft Windows Server 2008 with Hyper-V, and VMware ESXi v3.5

**Best For:** Data center managers looking for next-generation logical servers and simplified deployment.

**Price:** Starts at \$1,998

(877) 220-3355 | [www.dell.com](http://www.dell.com)



IBM's Q3 Results Beat Expectations

IBM released its third-quarter financial results, posting revenues of \$23.57 billion, which just beat analyst predictions of \$23.4 billion. The company posted a 14% increase in earnings, rising from \$2.82 billion (\$2.04 per share) in Q3 2008 to \$3.21 billion (\$2.40 per share) this year. Its \$23.57 billion in revenue is down 7% from this time last year, but it represents a 1% increase from the previous quarter. Regionally, IBM's sales were down 5% in the Americas to \$9.9 billion; down 12% to \$7.8 billion in Europe, the Middle East, and Africa; and relatively flat in Asia-Pacific at \$5.2 billion. Following the announcement of results, IBM's shares fell slightly, with some investors believing the company's results should have been better.

VMware Optimistic About Growth

VMware, whose third-quarter income fell 54% year-over-year, appears optimistic about its financial success despite the poor economy. The company's revenues grew 4% between Q3 2008 and Q3 2009, from \$472 million to \$490 million, leading VMware executives to believe that fourth quarter profits will continue to rise. VMware's profits come from license revenues, professional services, and software maintenance revenues. The company's third-quarter income was \$38 million, or about 9 cents a share.

Hedge Fund Leader, Others Charged With Insider Trading

Raj Rajaratnam, founder of the Galleon Group hedge fund, has been charged by federal prosecutors with securities fraud involving companies such as Intel, Google, AMD, and IBM. Rajaratnam is claiming innocence, and his lawyer says they will fight the charges. The complaints against Rajaratnam and five others involve insider-trading schemes. In one related to an Intel investment, Rajaratnam was allegedly in contact with Rajiv Goel, managing director of strategic investments for Intel treasury, and the two traded insider information related to Intel. Goel was also arrested but posted bail.

More Opposed To Net Neutrality

More parties are stepping out to voice their opposition to open-Internet policies or so-called Net neutrality. The Federal Communications Commission received a letter signed by 44 companies that said new regulations would present hurdles to Web development, rather than foster innovation. This letter came shortly after FCC Chairman Julius Genachowski said he would investigate regulations that would prevent ISPs from hindering Web content and programs. Lawmakers and trade groups have also expressed their opposition to Net neutrality.



# Building Up A Data Center

## How To Spot The Right Builder For Your SME

by Elizabeth Millard

WHEN AN ENTERPRISE is embarking on a data center build or renovation, one of the most vital components is having the right builder. Even if a construction firm

### Key Points

- Find a builder who's familiar with all the aspects of a data center, including physical security and ongoing maintenance issues.
- To keep a budget in line, have numerous discussions with a builder during the construction process about unforeseen costs and potential tweaks.
- Establish a long-term relationship with the builder, who will be familiar with the center in case any renovations are needed in the future.

specializes in warehouse and office environments, it doesn't mean they'll be equipped for the demands of a data center, particularly when it comes to equipment placement, power, and cooling. Here are some factors to look for when making sure a builder is up for the task.

### Experience Counts

Data center builders need to have a breadth of experience in a wide variety of areas, including physical security, environmental controls, power needs, connectivity, and failover equipment, among other issues, notes Steve Kolbe, president and CEO of managed consulting firm Analysys.

Even if a builder doesn't have all of this expertise on staff, it should be able to bring in consultants that can be part of the design and build team. A builder who's done a fair number of build-outs tends to have numerous contacts in relevant areas, such as electrical engineering, data center design, and HVAC design.

### What They Know

In addition to having a firm grasp on the physical considerations of the space, data center builders should be aware of IT issues, such as energy reduction and management solutions, power distribution tactics, and virtualization. These builders should also realize they're not creating a chilly warehouse space for servers but instead designing and building a facility that must have energy-efficient components.

Also important is builder awareness of local real estate. Sometimes, a company will find a parcel of land that seems appropriate and bring in a builder after it's purchased, but the process should actually be flipped, because a builder may have insight on issues such as operational costs and availability of affordable power. A local firm may have even built

other centers in the area and give thoughts about how those facilities could interfere—in terms of power consumption or resource usage—with a proposed data center.

Builders need an understanding of scalability, as well, notes Chris Crosby, senior vice president of corporate development at Digital Realty Trust ([www.digitalrealtytrust.com](http://www.digitalrealtytrust.com)), a developer and operator of data centers. Although many construction projects address how much power a company needs currently, an IT build should anticipate growth, but not too much. Building a center that's still half-empty in 10 years can lead to waste, Crosby notes.

Finally, a builder should know about government regulations, especially in the area of green computing. There are scores of regulatory concerns, from local ordinances to federal mandates, and a builder with expertise will be able to articulate the effects of these directives and how they might change the construction plan.

### Cost Containment

Every construction project has the potential for cost overruns, so budgets and line items need to be carefully controlled. However, an experienced builder should be able to work with an IT department to examine which costs are necessary and which are expendable. With a builder that's worked on other data centers, the knowledge of seeing how all the components fit together and what kind of spending is required to maintain that balance should be in place.

"Investment in IT infrastructure and data center build-outs are crucial for the ongoing nature of an SME," says Kolbe. "Not everything needs to be redundant, but it must work and be rated for the level of usage and load that your business is planning to have. This includes electrical, cooling, and bandwidth throughput considerations."

### Ongoing Engagement

Like a consultant, a builder shouldn't just be involved with the SME for only a

short period of time and then be on its way to the next project. Instead, establish an ongoing relationship with whoever you choose to complete your project, because you might need minor construction tweaks in the future to keep the data center's efficiency at a high level.

In terms of where to find builders in the first place, it's similar to getting truly crackerjack consultants: Ask around. Talking to other data center managers, especially those who've been through the building or renovation process recently, can be very helpful in finding builders who know about data center issues and are willing to maintain a relationship after the building is done. Even online bulletin boards such as Data Center Talk ([www.datacenterforum.com](http://www.datacenterforum.com)) can yield

Like a consultant, a builder shouldn't just be involved with the SME for only a short period of time and then be on its way to the next project.

referrals and suggestions, and the DCT forum in particular has a thread just about building systems and operations.

It may take more time to find a builder who's familiar with data centers—and such a specialty could cost more, as well—but hiring an expert builder experienced in all the nuances of a center, including fire protection and maintenance, is well worth the effort. ■

## Double-Check Whether A Build Is Necessary

Even with a qualified builder in place, do one last double-check before committing to a build or renovation to make sure it's the best strategy, notes Analysys President and CEO Steve Kolbe. This type of question should come up first in a building plan, but it should also be revisited during the process.

Organizations might want to consider a hosted data

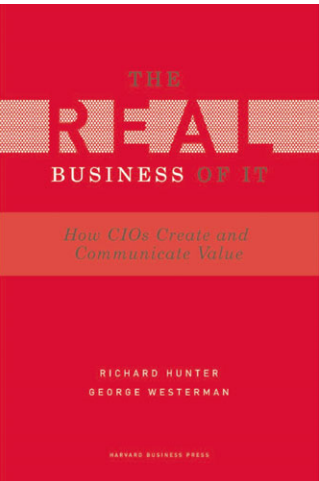
center solution rather than paying the costs involved with new construction or remodeling, says Kolbe. That decision will come down to whether an SME has room for growth, the expertise to manage their own data center onsite, and the necessary infrastructure.

"A data center must be kept secure to prevent intrusion, have a clean environment

controlled with redundant HVAC units for cooling, be constructed to withstand some level of disaster prevention, and be powered sufficiently on isolated circuits," he says. If an IT manager or CIO doesn't feel comfortable with putting all those components in place—and a builder balks at that level of complexity—it might be time to do more planning before construction starts.



BOOK REVIEW



# Ensuring Success

“The Real Business Of IT: How CIOs Create And Communicate Value”

**Authors:** Richard Hunter and George Westerman  
**Publisher:** Harvard Business Press  
**Price:** \$35 (list)  
**Format:** Hardcover, 256 pages

by Kurt Marko  
• • •

**THE ECONOMY**, with the resultant corporate focus on cost controls and IT’s fixation on budget cuts and operational efficiencies, has masked larger trends pushing IT to the strategic center of most business initiatives. Where IT had been considered a necessary overhead expense, on par with HR or facilities, echoes of the dot-com boom continue to reverberate, spawning industry-changing technologies ranging from Web 2.0 and social networking to the mass digitization of corporate information and workflows—all making IT more critical to future business success.

Reflecting this changed landscape, the premise of “The Real Business of IT,” by Richard Hunter and George Westerman, is that business managers want value from IT, but they’re doubtful IT is delivering. Summarizing the stereotypically negative perceptions of IT, the authors write that

business executives still question IT’s fitness to improve enterprise performance and “think of IT as a necessary evil, a cost to be diligently monitored and controlled, because the people in charge . . . are running a black hole that swallows up any resource that comes near, emitting nothing in return.” For CIOs and senior IT managers in situations where such perceptions of IT are prevalent, Hunter, a vice president at Gartner, and Westerman, a researcher at MIT’s Sloan School of Management, offer a guide to transforming IT into a valuable business partner and strategic asset, with the consequent peer recognition and respect that come with such elevated status.

### Value Quandary

Like most self-improvement projects, the authors contend that an escape from what they call IT’s “value quandary” begins with a change in thinking and perspective. The authors’ foundational

rule, “it’s not about IT,” translates to the dictum that IT can no longer be internally focused. “It’s all about business outcomes and business performance.”

After describing the problem and framing a new IT mindset, the majority of the book synthesizes four steps the authors have seen successful CIOs use to transform IT from a technology provider or vendor into a strategic business partner. The first, “change your thinking to avoid value traps,” concerns eliminating IT practices, beliefs, or habits that seem like good ideas or have historical roots but actually impede IT from delivering and communicating its value.

Step two entails IT demonstrating to the business that it indeed provides value for the money. In this step, the authors characterize the CIO’s role as the “cheap information officer” in charge of ensuring IT delivers the right services, at the appropriate level of quality and reliability, and at a competitive price.

Having turned IT into an efficient service provider, step three involves showing how IT improves business performance. At this point, CIOs become the “chief improvement officers” by working with other business managers to make the connection between IT investments and business results.

The final stage on the CIO’s path is showing how you have value beyond IT, specifically by earning a seat in the executive boardroom and assuming responsibilities for broader business initiatives that span IT and other functions such as product development, procurement, or customer care. The authors stress these steps must be sequential, as succeeding improvements build upon prior accomplishments.

### Path To Success

“The Real Business of IT” synthesizes a path to success the authors claim is astonishingly common across enterprises of all types. IT managers who find themselves trapped in a stifling, constrained environment, shut out from key business decisions, will find the book a valuable guide for moving their organizations into a new era of strategic business importance.

## KEY CONCEPTS

- IT is entering a new era where its role and stature is no longer as an internally focused technology provider, but rather a critical element in the business success of organizations in every sector of the economy.
- There are three forms of IT value of most importance to other business executives: value for the money (e.g., IT’s operational efficiency and effectiveness), IT’s contribution to the business (e.g., the ability to improve profitability), and the CIO’s personal leadership value beyond IT (e.g., making strategic contributions to other executives and business units).
- IT executives can transform their roles and their organizations by following a four-step process to sequentially move up the business value chain from optimizing internal efficiency to improving a company’s financial performance.
- Transformative actions are not enough; IT executives must communicate their value in terms that are meaningful to other business managers.

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## IDC Report Shows Trends In Hardcopy Peripheral Market

IDC recently released its quarterly Worldwide Hardcopy Peripherals Tracker, a report that examines the trends happening in the MFP (multifunction peripheral) market. According to IDC, color laser MFPs experienced only a 6% decline in the number of units shipped year-over-year in the second quarter, demonstrating that MFPs are enduring the effects of the current economy better than single-function peripherals. Phuong Hang, program manager for the Worldwide Hardcopy Peripherals Tracker, says that IDC defines MFP devices as those that are able to both print and perform at least one other document function, such as copying, faxing, or scanning.

IDC's report shows that, overall, the hard-copy peripherals market declined 21% to 24.1 million units, while the value of shipments declined 23.2% to \$11.6 billion. The decreases have companies that specialize in hardcopy peripherals looking for ways to cut costs or enhance productivity. "As expected, we are seeing more vendors employing several strategies to weather the current economic downturn," Hang says. Hang also notes vendors are not only driving managed print services but also offering cost-cutting or performance enhancements to the document structure that customers already have.

### Breaking Down Value

Within the hardcopy peripherals market, IDC's report shows that the inkjet market stood out in the technology segment, shipping 16.6 million units in the second quarter of 2009. Despite this, the monochrome laser market asserted itself as the largest-valued technology segment, worth \$4.2 billion. "We are seeing enterprises buying more laser devices than non-enterprise," Hang says. "Within the laser space, enterprises are purchasing devices with faster printing speeds."

Based by region, the United States was valued the highest, at \$3.9 billion, and shipped 5.7 million units, making it second in rank of shipping. In first place for shipping was the Asia/Pacific (excluding Japan) region, with 6.1 million units shipped, although the region was fourth in terms of value, with only \$1.7 billion. The Western European region fell 23% in units sold but still remains in second place for value, at \$2.7 billion. Hit even harder was the CEMA (Central Europe, Middle East, Africa) region, with shipments falling by 44% and overall value decreasing 57%. Lastly, Japan showed the highest growth rate for units shipped, at -3%.

by Kris Glaser Brambila

# Leasing Data Center Equipment

## Greater Financing Freedom For Strapped IT Shops

by Carmi Levy

AS IT ORGANIZATIONS put the finishing touches on their 2010 data center budgets, many of them are looking more closely at leasing as an alternative way of acquiring, financing, managing, and ultimately disposing of their assets. As with any other IT-focused initiative, decision-makers must first do their homework.

"In many cases, business owners will find lease financing very advantageous for their needs because they just can't afford to purchase capital assets for IT," says Ralph Petta, interim president of the ELFA (Equipment Leasing and Finance

### Key Points

- Instead of tying up scarce cash in purchasing or financing technology assets, companies that lease can instead use these resources for other business needs.
- Lessors provide cradle-to-grave assistance, ranging from sourcing, ordering, and delivering new equipment onsite to managing the asset through its life span and orchestrating its disposal and replacement.
- Cost-conscious finance departments and CFOs often appreciate business cases based on the simplified financial arrangements available through leasing. Greater visibility into these transactions is an added bonus.

Association). "Because they're looking to pay their people, have operating capital, and manage their cash flow, leasing is a terrific way of acquiring this stuff without having to go into debt or use hard-earned cash that could be otherwise used in other aspects of the business."

### The Economy's Ongoing Influence

Recession-struck companies have become much more careful about how they finance their technology initiatives. Stewart Buchanan, research director with Gartner's IT asset management and procurement research team, says leasing wasn't immune from the economic downturn.

"During the pinnacle of the credit crunch in the autumn of 2008, we saw that getting credit and signing a lease was becoming more expensive for many of our clients," says Buchanan. "The gap between bank base rate and lease rate or lease factor jumped to about 6%, and only recently has started falling below 3%."

Buchanan says as access to credit improves, companies are increasingly looking to leasing as a vehicle for driving agile, cost-effective technology implementation. And as they move ahead with post-recessionary roadmaps, CFOs and other financial decision-makers are becoming more involved than ever in these decisions. Ultimately, business needs must drive IT's plans.

"The most successful business cases for leasing come about from IT organizations that have their finger on the pulse of the business," says Buchanan. "And the most successful business cases for reinvestment at the moment are very much in line with the business strategy for returning to growth."

### Focus On Both Tech & Finance

Companies making a lease vs. buy decision must consider two key aspects—technological and financial—before they make the call. Tim White, managing director and head of commercial markets for Bank of America Leasing & Capital Group, says getting the best deal is a great place to start.

"IT lessors do provide very cost-effective capital that is very often less-expensive financing than the lessees themselves can obtain directly from their bank," says White. "Beyond that, it usually does come down to the additional services that they provide."

White says these lessor-provided services include the following:

- Ordering equipment and managing its delivery.
- Paying for equipment as it arrives on the customer site and allowing the customer to avoid significant up-front payments.
- Rolling up payments into a defined lease schedule to simplify budgeting for the customer.
- Tracking assets in customer-accessible Web-enabled databases.
- Disposing of assets at the end of the lease and wiping hard drives to remove data and ensure compliance.

"Experienced lessors allow you to take advantage of their built-in software applications and competencies so that you can very easily manage your overall costs," says White. "There's an ease and simplicity in IT leasing that has value beyond the financial cost."

That value can extend to the initial approval, as well. Gartner's Buchanan says leasing can simplify spending, which makes it easier to get CFOs and other financial decision-makers on board.

"Some companies have been extending life cycles quite aggressively over the last 18 months because of the economy," he

says. "So if you want to do a major capital refresh because you've been holding on to your existing technology, you'll want help to manage the rollout. If you can bundle that into a leasing service agreement, it can be much easier to get that final figure approved than as a separate line item."

Buchanan says ongoing IT operations are also boosted by the lessor's asset management competencies, something many IT departments often lack the resources to effectively execute. This also gives the organization greater visibility into what's being spent and what value is being returned.

### End Of Lease, Top Of Mind

The end of the leasing period is a critical milestone that's often overlooked. Organizations can typically decide to extend the lease, purchase it outright, return the equipment and exchange it for updated technology, or end the relationship entirely. IT must plan well enough in advance to minimize or eliminate interruption to the business.

"The customer needs to determine whether or not the current equipment is doing the job," says the ELFA's Petta. "Because it's easier to keep an existing customer than find a new one, leasing companies will be very flexible at this point in terms of working with the customer and understanding their needs going forward."

In many cases, the flexibility of leasing allows companies to grow their capacity without adversely affecting their cash flow. It can also make it easier to drive the business forward.

"I've seen many situations where a company that has a monthly payment on older, larger equipment trades up to newer equipment that has faster response times, takes up less room, and reduces their payments, as well," says Bank of America's White. "This is why the relationship with the lessor is so critical, so that you can be aware of these opportunities."

"It's important to know who you're dealing with," adds White. "You want to be with somebody who will keep you informed, who will be on your side of the argument all the time, and who will always be looking for ways to make your life easier." ■

## Best Practices In Evaluating Different Leasing Options

Evaluate each lease proposal on its merit. Different types of assets may be more suitable for leasing than others. For example, assets with short life cycles may be better candidates for leasing than those with longer durability.

Explore software and services financing. Although leasing has traditionally been used for hardware acquisitions, companies should also ask their software vendors about financing options. Traditional financing or SaaS arrangements offer many of the benefits of leasing.

Consider independent lessors and OEM-specific ones. Know what kind of equipment you want and be prepared to shop around for it before you make a final decision. Independent lessors can simplify sourcing equipment from multiple vendors. Using neutral financiers can also facilitate greater flexibility around platform changes down the road.

SOURCE: BACK TO BASICS: WHY IT LEASING MAKES SENSE IN THE ECONOMIC MELTDOWN. SUDIN APTE, FORRESTER RESEARCH, 2009.



OPINIONS

INFO-TECH • INSIGHT

# Are Gut Instincts All Bad?

In the business world, the proliferation of decision support systems, such as business intelligence, represents a new front on which computers appear to be challenging the human intellect. The casualties in this case are the once-prized gut instincts of elite executives, which, we are told, have gone the way of crystal balls and tea leaves. Business leaders are now advised by both analysts and analytics vendors alike to adopt data-driven decision making enabled by sophisticated analytical software.

Data-driven decision making is certainly a welcome advance in modern business. There is little doubt that decision support systems have greatly enhanced the intellectual capacities of those organizations that successfully deploy them. But why does any of this entail that we abandon our gut instincts?

### The Case Against The Gut

Since the early 1970s, psychologists have produced experimental evidence showing that we are subject to systematic biases in the way we think. Rather than think through a problem analytically, people tend to use heuristics—simple rules of thumb—to solve problems. These heuristics are the source of most of our gut instincts. Let me demonstrate with an example.

Imagine you have been watching a fair coin being flipped repeatedly and it has turned up heads every time over the past 20 tosses. You are now asked to make a wager. Do you bet heads or tails? Most

people in this situation have a strong feeling, or gut instinct, that their luck is about to change and so they bet tails. If you are one of those people, then you fell prey to what is called the “gambler’s fallacy.”

A fair coin has equal chances of coming up heads no matter how many tosses have been made—it is not influenced by previous tosses. However, people expect the distribution of tosses to be equal and so they believe, contrary to chance, that the tosses will start balancing out. Now imagine if your investment advisor reasoned this way!

As a result of numerous demonstrations like this, academics, industry analysts, and some notable analytics vendors have argued that gut instincts should not be trusted when it comes to making important business decisions. The proposed corrective is to replace gut instincts with technology-driven data analysis.

### A Modest Defense Of Gut Instincts

It is true that these biases are a pervasive feature of human reasoning, and both individuals and enterprises alike should guard themselves against them. However, gut instincts aren’t all bad.

In his popular press publication “Gut Feelings: The Intelligence of the Unconscious,” psychologist Gerd Gigerenzer offers an impressive series of results demonstrating that judgments based on gut instincts can be as, or more, successful than sophisticated logical or statistical analyses. Let me recount one of his studies to make the point.



**AUTHOR:** Gareth Doherty is a research analyst specializing in business intelligence and data management. His published reports have addressed security- and data-related topics such as email encryption, data quality management, and master data management. Doherty’s recent work focuses on advising enterprises that face technical and business process issues around business intelligence implementations.


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simple heuristic: Name brand recognition is a strong predictor of company success.

Based on the pedestrian insights and the simple principle of diversification, their portfolio beat out 88% of the other contestants, many of which were based on sophisticated analytical models and volumes of company data. They also clobbered the editor-in-chief’s portfolio—the benchmark for the contest—by a whopping 21%. One shouldn’t conclude on the basis of this experiment that name recognition is a fool-proof strategy. The point is that, all things considered, this rule of thumb fares at least as well as predictive models underlying major funds.

One of Gigerenzer’s lessons is that sometimes less is more. Gut instincts work by ignoring information which can sometimes cloud judgment and paralyze analysis, especially when there is a great deal of uncertainty. Gut instincts reduce uncertainty by simplifying the problem to a limited number of factors. Moreover, they are “fast and frugal,” making them valuable tools in situations demanding immediate decisions, a situation that many executives face on a regular basis.

### A More Balanced Perspective

Although well founded in some cases, the assault on gut instincts isn’t entirely fair. It’s certainly true that gut instincts don’t deserve the privileged status that some executives give them. The science is crystal clear on this point. More importantly, gut instincts are not a substitute for the kind of insight afforded by data-driven approaches to business management. The point is that gut instincts, at least in some cases, can be a valuable tool in the executive’s arsenal. The real challenge is figuring out when to listen to them. 




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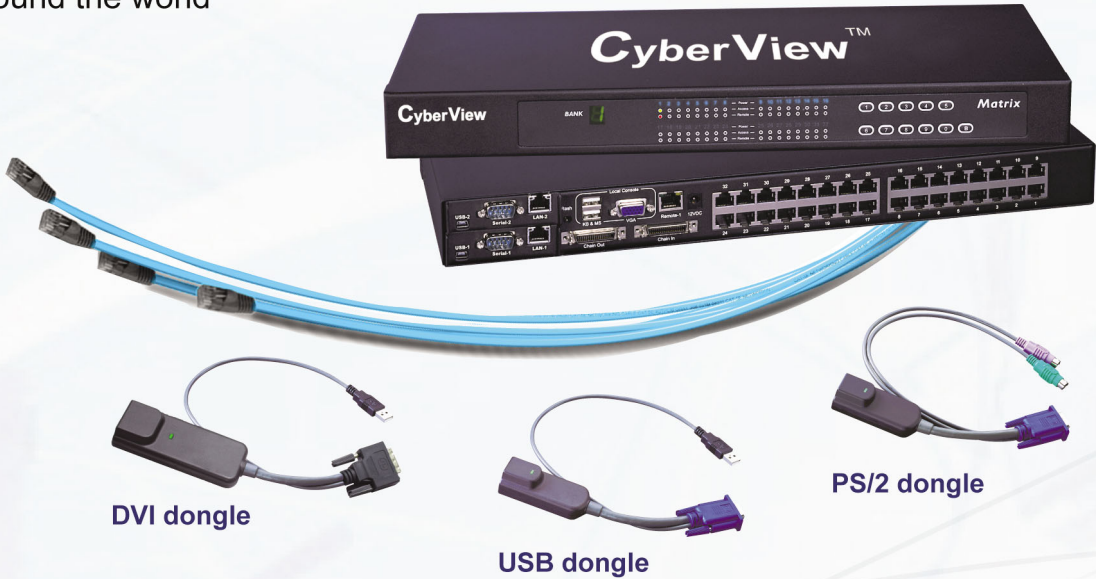
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